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TEN LECTURES

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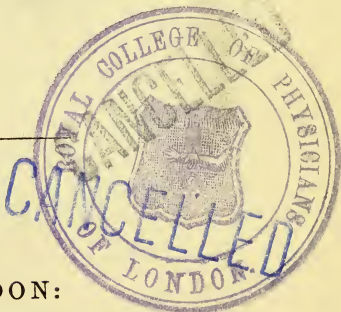
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STUDY OF FEVER.

BY

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THE following Lectures have been printed from a short-hand writer's notes of my extempore speaking, corrected and somewhat condensed. In substance they do not pretend to more than is assumed on the title-page; and if they are found useful to students, my end is gained.

A. A.

March, 1861.

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LECTURE I.

FEVER—ITS CAUSE; ITS ESSENTIAL NATURE; ITS TYPES.

OUR course of practice of medicine, gentlemen, falls into two great divisions, comprising respectively the general and the local diseases. Of the first, some may occur at any part of the body; of which sort are diseases of Nutrition, the derangements of the Capillary system, and Inflammation: others, when present at all, must exist at *every* part, because they are blood diseases. These last comprise diseases of Assimilation, maladies arising from Virulent poisoning,—and FEVERS, which we now take up.

With these it is of the utmost importance that you should be thoroughly acquainted, for fevers will meet you in every corner of your practice, every day of your lives. But this subject is one which, to judge by my own experience, is generally but imperfectly understood by the student,—his difficulty arising partly from the way in which authors have treated it, and partly from the essential complexity of the disease itself. Many authors, in treating of fever, overload their description with such a variety of symptoms and facts

that the student's mind is so burdened with innumerable details that he is unable to grasp the essential and distinctive points of the disease. And again, if you go to the bedside, more difficulties and complexities await you. You are taken to see a child in fever. You are bid to remark the heat of the skin, the flushing of the face, the scarlet efflorescence over the body,—the sore throat; and you are told rightly, that these are the symptoms by which you are to recognize scarlet fever. In the next room the father of the child may be ill with severe sore throat, but without any eruption, and the student still is told that this too is scarlet fever. And upstairs there may be a second child, running about the room, complaining of nothing, having only the efflorescence on the skin,—and yet from the presence of that eruption—which in the case of the father has been shown to be non-essential—he is to conclude that this child also is labouring under scarlatina; while next day he may be called to see another of the children sink and die in a few hours, without eruption, without sore throat, but still, they tell him, of scarlet fever. How can he unravel all this difficulty, especially when he afterwards observes that other fevers may produce symptoms hardly to be distinguished from those of this last case? and that thus we may have the same fever producing symptoms the most diverse, and identical symptoms arising from the action of different fevers. No wonder therefore, that the student finds it difficult to comprehend this subject fully. You may unravel the

difficulty by remembering the distinction between the poison producing the fever, and the fever which is so produced. As far as the natural history of the complaint goes, it is with the *poison* that we have to do; as far as we are concerned with the disease as practical physicians, our business is with the *effect* produced—with the course and currency of the symptoms.

If, looking through a window, you see two vehicles driven along a distant road—so far off that you cannot distinguish the animals which are harnessed in them; but observe that one goes along at a rapid pace, the other stops every now and then, and gets forward very slowly;—informed that one is drawn by a hunter and the other by an ass, you have little difficulty in making your diagnosis, and it will in most cases be correct. But it is not a *scientific* diagnosis; the hunter may be lame, and the ass unusually active. To make it scientific you must go near, you must observe the animals—their tails, their ears, their hoofs—and so you ascertain precisely which is which. But for the purpose of *driving*, it is of no consequence whether the animal be a horse or an ass. The driver must be guided, not by the natural history of the beast, but by its on-goings at that particular time. And so it is with the physician guiding a fever. It is very useful for us to know what are the special tendencies of a particular fever, because we are thus prepared for what is likely to emerge in the course of it. If we know, for instance, that typhus fever is apt to seize its victim by the head, and

measles by the chest, we understand what to expect, and are prepared to guard against it; but we are not to enter upon any particular plan of treatment because the case is one of typhus or of measles; we are to treat our patient because particular *symptoms* have, in the course of the malady, emerged. And therefore, while it is useful to have the marks of the disease—to know by the eruption, by the sore throat, and so forth, what the particular poison is which is working in the system;—while it is useful sometimes to be able to trace even the footprints of the disease—as dropsy, for instance, is the mark of the cloven hoof of scarlatina; still, as practical physicians, standing at the bedside, we are to be guided by the symptoms and type of the individual specimen of disease, and not by the name of it. Therefore let us in the meantime put aside altogether the names of particular fevers—let us not speak of typhus, or measles, or scarlatina, or any particular fever; but take fever in its ideal. Let us study it thus:—its cause, its types, its various phenomena, and condescend subsequently upon the individual fevers which may produce these varieties of disease.

The first question then for us to ask is, What is it that sets the fever a-going? There are three things which may give rise to fever—Cold, producing a deranged distribution of the blood; Irritation, producing an excitement of the nervous system; and the imbibition into the system of a Poison, which deranges the nature of the blood.

COLD is a very common cause of *inflammation*,

but not of fever. For the most part, cold produces fever only in those whose health is previously somewhat deranged—for example, where there is a tendency to congestion of the portal system. A child, previously out of health, is thoroughly chilled: and this is followed, not by an attack of inflammation, as you might expect, but by a regular fever, which would not probably have been the case had he been perfectly well before. The IRRITATIONS which may cause fever are various: the exposure of the body to the unwonted heat of tropical climates may induce it; and certainly mental agitation will do so, as in the case of weid in puerperal women.

But it is of more importance to attend to the third class of the causes of fever, namely POISONS. These produce by far the greatest number of the fevers with which we have to deal; and in fact, practically speaking, we may almost dismiss the other causes at present from our notice. Poisons producing fever enter the system in two distinct ways—first, by a palpable inoculation, as small-pox, for example, may be introduced; and secondly, by impalpable emanations of contagious matter, probably inhaled—at all events in some way absorbed into the blood. In all cases of persons exposed to febrile contagion, the poison enters the blood; but it produces fever in those only who are susceptible of the disease. For instance, I met with the case of a woman, who during her pregnancy was exposed to the contagion of measles. She having had measles before, did not take the disease; but the child of which she was

delivered shortly after, was born with the measly eruption out upon it. Her blood had been full of the poison, but it was only the foetus in utero which was susceptible of its working. Now the poisons producing fever are four—Malaria, poisonous emanations from vegetable matter; Effluvia, poisonous emanations from animal matter; the Specific contagious emanations from particular fevers, as typhus for example; and Epidemic influence—a poison existing in the atmosphere, coming we know not whence, acting we know not how.

Malaria.—This is the name by which it is convenient to designate what some have called the paludal poison—a poison arising from marshes in particular conditions—marshes where vegetable matter is exposed to decomposition under the influence of partial moisture and of heat. Thus wherever such marshes exist—from the fens of Lincolnshire to the poisonous districts of the western coast of Africa—we have fevers of more or less severity induced. It is necessary that there should be a certain heat. If the temperature be much below 60° Fahrenheit, there is no fever poison evolved. It is necessary also that the poison-producing particles should be exposed to the air and to moisture. If the marsh be entirely flooded—if the marsh be entirely dry—in neither case will the poison be evolved. More we cannot tell of its causation; the poison itself we only know by its effects. We know that it is material. It may be wafted along with the wind, and so induce fever at some distance from its origin. It may be inter-

cepted by a belt of trees, so that when such a grove is cut down, fever may appear where it was before unknown. The poison is most intense near the surface of the ground, so that houses built on a higher level are comparatively safe from its effects; and currents of air produced, for example, by fires lighted in the vicinity of a spot where men are working, have a certain influence in warding off the danger.

Effluvia.—We give this name to poison produced by the decomposition of *animal* matter; but there is something more of obscurity about this poison than about the former. There can be no doubt that fevers have arisen in circumstances where masses of men were crowded together without ventilation, without comfort, without cleanliness; as for example, in the crowded unhealthy gaols of former days; in towns occupied by a beaten, discouraged army; and in other such circumstances. Some say that in these cases the poison is not produced, it is only propagated more readily; and there can be no question that any poison will be propagated more readily in such circumstances. But I have little doubt that a fever-poison may be originally produced by circumstances such as those I have mentioned. Then again, *decomposing* animal matter will cause fever. The putrid vapours arising in ill-drained houses will do so, producing particularly fever of what we shall afterwards call the gastric type. Yet all decomposition of animal matter will not do this. The men who work in slaughter-houses, and who are occupied in other such unclean

trades, do not suffer especially from fevers. There is something that we do not exactly understand—some unknown factor in the production of fever-poison from decomposing animal matter; but I have no doubt that fever may be so induced.

Contagions.—These are specific poisons—those of measles, scarlet fever, small-pox, typhus, and so on, which have the property of inducing each its peculiar fever, and no other. Small-pox never arises from typhus, measles never from scarlatina. These differ from the malaria, in being multiplied in the body of the patient, which becomes a new source of the contagion; and acting within a limited distance upon those who come near, will produce in susceptible persons the specific fever. The poison in these fevers appears, curiously enough, to be most energetic during the period of convalescence—at least I am quite convinced that it is so with typhus. At the time when I was clerk in the fever hospital here, we often got into the acute typhus wards cases of various other diseases; it was our invariable rule, based upon experience, to send these patients home directly from the acute wards, because we found that they might continue there without much chance of catching the fever, which they were sure to take if sent to the convalescent wards. In all probability this greater contagiousness at the time of convalescence has something to do with the desquamation of the skin which takes place at that period of the disease. The poison of contagious fever may be carried about from place to place upon clothes, in the absence alto-

gether of the original person who produced it; and you might thus store up a fever for an indefinite time—certainly, in the case of scarlet fever, for a year—by keeping it upon clothing, or on the paper-hangings of a neglected room. There is no more remarkable peculiarity in these contagious poisons than that although, as I have explained, they must needs enter into the blood of every person who comes within reach of a patient labouring under the disease, yet it is the exception to find a person attacked by these diseases twice. The reason of this has not been explained, and we need not at present spend time in inquiring into it. The *fact* is enough for us.

Epidemic Influence.—The subject of epidemics is most important and interesting. Various diseases are found to affect larger or smaller portions of the world at once—travelling more or less rapidly over a country, throwing themselves in an arbitrary, at all events in an unexplained manner, upon particular regions, particular parts even of one town, while other portions are left in complete or comparative immunity. Epidemics are not necessarily distinct from the diseases of which we have now been speaking. Thus they sometimes arise in connection with malaria, as is the case with yellow fever;—sometimes in connection with what we have called effluvia; and they are also often contagious specific fevers, as typhus, or scarlet fever. You have therefore in the epidemic influence something over and above the other causes of fever. And if you want an example of a pure epidemic, unconnected with malaria, effluvia,

or specific contagion, you may get it in influenza. Epidemics vary in character very much—some are mild, others most severe; and not only so, but the “constitution,” as it is called, of the disease, may vary from the beginning to the close of the same epidemic. Thus have arisen much confusion and mistake with reference to the action of remedies. Those which are tried when the cases are comparatively mild have got undeserved renown; those which have the misfortune to be made use of when the disease is in its greatest severity have been unduly discredited. The effect of epidemic influences on the health is remarkably shown by the fact that when cholera prevailed here, purgative medicines, as castor oil, acted powerfully in doses much too small to have had the effect in ordinary years. Two epidemics may prevail at the same time, and be of different severity. Graves gives in his “Clinical Lectures” the example, that in the year 1842 there was in Ireland an epidemic of scarlatina of a typhoid character; while the typhus fever which prevailed was mild, and the measles, on the other hand, was of an inflammatory type.

Such are the causes producing fever. Now, as in the case of other poisons, these causes do not produce the effect at once. There is a period of *latency* which elapses between the introduction of the poison and its development into fever. This period varies in duration, we shall say, from four to fourteen days; and it appears to be shorter the more virulent is the poison introduced—sometimes the outbreak of the

symptoms appearing to be almost contemporaneous with the introduction of the poison. The period is not usually altogether a period of health; sometimes it is. Sometimes there is no symptom whatever, until the sudden outbreak of the fever; in other cases there is a degree of ill health. There is languor and vague malaise; and in measles, for instance, this is often much prolonged. I have seen the outbreak of typhus fever preceded by violent nightmare; the young man awaking in the middle of the night, shouting "murder" to the great terror of the whole family, who were immediately gathered at his bedside to protect him against the supposed attack. Now during this period of incubation we may use efforts to prevent the fever. When a person has been exposed to the contagion, say of typhus, and begins to complain of languor, lassitude, headache perhaps, and slight sickness, then is the time for trying to ward off the disease. Remove him from the source of contagion, keep up the vital power by camphor, quinine, ammonia, alcoholic stimulants in moderation; and in many cases I do believe you will succeed—just as in the case of malaria, quinine introduced into the system so fortifies it, that although the poison must needs be absorbed into the blood, it does not there produce the effect which it otherwise would. I believe it is at this period of the fever that emetics can be of use. If the fever have fairly developed itself I do not think you can cut it short; and during the stage of incubation anything that exhausts the patient is injurious. You must not fight

against the fever. One of our own profession, let us say, feels the indications of on-coming fever:—determining to resist it to the last, he continues to go about in his usual way. I believe this is the very worst thing that can possibly be done in the stage of incubation. Every effort ought to be made to keep up the vital system, and not exhaust it.

These then are the causes of fever. Now let us ask, What is fever? Here you observe we are altogether casting aside any nominal fever. We are not speaking of scarlet fever, of typhus fever, and so on; we are taking fever in the general. I daresay you are all aware that fever has been attributed by different authors to local affections; by some to affection of the head; by some—the Broussaists I mean—to an affection of the intestines. Certainly local diseases may produce a febrile state. We have seen that inflammation gives rise to fever; but this is not the fever of which we are now speaking. We speak now of “idiopathic,” or as some call it, “essential” fever; and there is no doubt whatever that idiopathic fever has a real existence,—that *there is essential fever*,—that there is fever which may kill a man without any local lesion whatever. There is not the least doubt of that. I have inspected the bodies of patients dying of typhus, and found no lesion whatever to which we could attribute the symptoms under which they laboured. Of course fever may become complicated; and in fatal cases it is probably for the most part complicated—with affections of the lungs, of the bowels, of the throat,

and so forth; and the fatal termination is in the majority of cases owing to the complication: but one single case acknowledged—and there are many such cases—in which fever has proved fatal without complication, is sufficient to establish the fact that essential fever has a real existence, and may occur independently of any local lesion. Let us therefore study fever first in its pure form, and then take up its complications.

We ask then, What is the essence of fever? Taking pure fever, without any complications or additions to it, we find that essentially it consists of two parts, each of these two parts having three elements; that is to say, we have six things in pure fever. We have *three derangements*—derangement of the Blood, derangement of the Nervous system, and derangement of the processes of Assimilation; and going along with this triple derangement, we have a *triple series of phenomena*—we have a state of Depression, followed by a state of Reaction, and that by a stage of Subsidence. Obviously, these three phenomena—depression, reaction, and subsidence—are consecutive one upon another. They cannot co-exist; they must in the nature of things follow one another. But the three derangements—in the blood, in the nervous system, and in the assimilation—are contemporaneous; they go all hand in hand. These are the six things that we have to study. The derangements of the three vital functions—of the blood, of the nervous system, and of the assimilation—are of the *nature* of the malady; the three phenomena—the depression,

reaction, and subsidence—are of the *progress* of the malady. The three derangements may be of various degrees of *intensity*; and the three successive phenomena may be of various degrees of *activity* and of *duration*. Thus you observe, as you have six things which may all vary, and of which four are always present—that is to say, the three derangements of the vital functions, and *one* of the stages of progress—how easily we can account for the complexity and the variety which fever exhibits. These phenomena then, in double parallel order, are all essentials of fever; but they constitute fever only when combined. In scurvy the blood is deranged, but we have no fever; in delirium tremens the nervous system is sufficiently perverted, and yet we have no fever; in dyspepsia the assimilation is disturbed, and yet there is no fever. We have often depression, when a person is exhausted from fatigue; we have reaction; and yet no fever. It is the arrangement—it is the union of these phenomena, which constitute the disease.

Let us examine them a little more minutely. First, the BLOOD. The derangement of the blood is twofold. There is a tendency—often much developed—to a diminution in the quantity and vitality of the fibrine of the blood; and there is a tendency to a dissolution of the corpuscles, which in some fevers is as marked as in purpura or scurvy, giving rise to ecchymosis and hæmorrhage. Secondly, the NERVOUS SYSTEM is always more or less deranged. The mind is confused; there is often delirium, particularly

in children, as a remarkable and familiar symptom. Sometimes the mind is oppressed, obscured, and its temper changed;—sometimes the senses are very acute—the skin is unnaturally tender—the eye cannot bear the light; while at other times the very reverse is the case, and the patient for the time becomes quite deaf. Thirdly, the change in the ASSIMILATION is very complex. The first thing that is noticed is that there is an increased waste of the tissues. They decompose more quickly than they ought to do; and this, as far as the nitrogenous matter is concerned, is indicated by an increase in the quantity of urea in the urine, which is highly coloured, and of high specific gravity. As a consequence of this increased waste, you have an increased development of heat. The fire is burning too rapidly; the tissues are decomposed, are oxygenated, and hence the familiar heat of fever. And the effete matter which is set free is sometimes retained in the system for want of due elimination. The kidneys, bowels, skin, are not doing their duty, and the consequence is that we have further poisoning, and an increase in the symptoms of the disease; while as the person is taking little or no food, the blood is more and more impoverished, and as Stevens noticed, it is wanting in saline matter. As an index to all these alterations of assimilation, we have the state of the *tongue*, which is more or less altered in fever from the healthy condition; the *skin* is for the most part dry; the evacuations from the *bowels* are unhealthy; and there is a peculiar odour diffused

from the patient's body. He has an utter want of appetite, and generally speaking an ardent thirst. These are all phenomena familiar in fever, and which point distinctly at this mal-assimilation.

Now as we have seen, these three derangements, in the blood, in the nervous system, and in the assimilation, must, to constitute fever, be accompanied by the triple series of phenomena as to the progress of the disease—depression, reaction, and subsidence. Each of these—which of course can never co-exist—is found to bear both upon the nervous and upon the circulatory system. The first phenomenon of fever is DEPRESSION of the nervous system—languor, lassitude, chilly feelings, as of cold water running down the back, vomiting, and in children, convulsions. You say, “Is this convulsion a sign of depression? rather of excitement.” Not at all; bleed an animal to death, and you will see it convulsed before it dies. But depression affects also the circulatory system. Feel the pulse at this stage; it is slow and feeble. The skin is cool, and there is a tendency to repel the blood from the surface to the viscera. But depression is soon changed into REACTION—at least in ordinary cases. The depression took first effect upon the nervous, the reaction is most prominently observed in the vascular system. The skin becomes hot, the face flushed, and the pulse rapid, and then the nervous system also shows symptoms of reaction. There is headache, there is excitement, there is—particularly in young and susceptible persons—delirium, often very violent. There are acute pains in the bones, the

back, the limbs; and there is sometimes an unnatural sensibility of the surface, from exaltation of the sensitiveness of the nerves of the skin. These are the phenomena of reaction. There are in the third place, provided the person is not to die, symptoms of SUBSIDENCE. The pulse begins to fall in frequency, and the heart beats less energetically; the skin becomes moist, the tongue soft, the urine pale, and so far from now containing excess of nitrogenous effete material, it contains, as I have found at this stage of typhus, scarcely any uric acid. Occasionally this subsidence is marked by what have been noticed from the earliest periods of medicine, and have gone by the name of "critical" occurrences. These may be evacuations—copious sweating, copious diarrhoea perhaps, which in many cases indicate the *turn* as it is commonly called of the fever, though sometimes there are no evacuations, but merely phenomena. For example the patient falls asleep, and sleeping for hours, awakes convalescent; but it would be an error to suppose that you have the period of convalescence always marked by these critical phenomena. I should say from my own observation, that this is the exception and not the rule, and that usually subsidence gradually comes on when the excitement of the fever diminishes. In favourable cases the subsidence goes by the name of *convalescence*. The nervous and vascular systems, which had been so greatly deranged, recover gradually, and the power of assimilation is also restored. There is still great weakness, sometimes even of the muscles of articula-

tion, and hence also a feeble, rapid pulse, even when there is no lesion to keep it up; and all the nervous system is often variously enfeebled. A lessened power of thinking is also often observed; but gradually as the nutrition of the brain improves, the mind resumes its work.

Now these phenomena are all the essentials of fever. But not only may they constitute a disease of any degree and of any duration—from a slight ephemeral illness to one the most severe; but they may produce death at almost any time of their currency. You may have a person dying, as in yellow fever, in two hours from the commencement of the symptoms, and you may have a fever running on for weeks. The urgency of each set of symptoms may also vary much. The depression may be very slight, and the reaction may seem the earliest occurrence; or the depression may be so great that no reaction follows. I have seen a fever run its course without any change in the tongue, *or* without any disorder of the evacuations from the bowels, *or* without any increased rapidity of pulse. There may be scarce any heat of skin; there may be no delirium; the person may sink and die of fever with the calmest and most complete intelligence. Thus you observe we have an immense number of varieties of fever; hence its great complexity, and hence the supreme need of attending to the principle of *analysis* before we can possibly understand, or even properly study it.

Now in looking at fever—still speaking of fever irrespective of any particular poison—we divide it

thus into eight different TYPES; in other words, eight distinct phases which fever may assume. First, the *mild*, where all goes smoothly, and little treatment is required—a type of fever with which it is very easy to deal; secondly, the *toxic*, in which the patient dies poisoned, rapidly, as if by aconite or arsenic. We have six types besides; and these six types consist of exaggerations of the six phenomena which I have already mentioned as the component parts of essential fever. If the stage of depression be in excess, the fever is said to put on the *congestive* type; if the stage of reaction be in excess, it bears the name of *inflammatory*; if the stage of subsidence be excessive, the fever is then of the *asthenic* type. Again, if the derangement of the nervous system be especially prominent, we call it a *nervous* fever; if the derangement of the blood be excessive, it is a fever of the *septic* type; lastly, if the derangement of the general assimilation be very marked, we call it fever of the *typhoid* type. Let us now take these eight types, and go over them before we enter upon any individual fever, keeping our minds altogether disabused of the idea that the type of fever has any necessary relation to the poison inducing it. We have time to-day only for the

MILD TYPE.—This may be seen in many fevers. The river flows smoothly along—no need of embankments here. The course of the fever is safe, and ends where it began—in health. There are no special symptoms to demand particular attention. All that

we have to do is to stand by and to see that no undue and improper influence is brought to bear upon the patient, to disturb the currency of the disease. Thus in measles you may often see the mild type;—very frequently the child is hardly ill at all. We require to do almost nothing. But it is remarkable that often in the same family you have fevers of the same name, produced by the same poison, putting on the mildest and the most severe types; cases of scarlet fever for instance, so mild that they are scarcely recognized as fever, until another child takes the disease and dies; and contagion imbibed from the mildest case may produce one the most severe.

LECTURE II.

FEVER—ITS TYPES; ITS FORMS; ITS COMPLICATIONS.

THE difficulties, gentlemen, which we experience in the study of works on fever, are analogous to those we should find in that of architecture, did the authors who endeavour to explain the different orders select some individual specimen of each, and describe not only the form of the pillars, in which the essence of the order consists, but also the structure of the temple, the material of which it is composed, the age to which it belongs, the nation who founded it, the deity to whom it was dedicated, and so forth, leaving us in great confusion as to which of all these things really constitutes an order of architecture. It is for this reason that I wish you to dismiss from your minds, for the present, the particular species of fever, and to attend with me to fever in the general; and you will remember that we are to-day to consider the types of the disease.

It would be well if every specimen were of the MILD TYPE; we should then have little difficulty in the treatment, and fever^{*} would become the paradise

of quacks. Unfortunately, however, this is not the case. Thus I was called to see a little child in a house where there was scarlatina; he was vomiting, purging, depressed, exhausted, restless, and out of his mind; he was as if poisoned, and died in a few hours in spite of treatment. This was a case of the TOXIC TYPE. If a man be poisoned by arsenic, it may be pumped out of his stomach; if by opium, we may resort to antidotes to save his life; but by what means can we remove the poison of fever or meet it with an antidote? We have no such means; therefore the great majority of these cases die whatever we may do. With us they occur most frequently in scarlatina, but they are also well known in plague and in yellow fever; and all we can do is to keep up the strength, and stimulate as well as we may.

The next three types are exaggerations of the three stages which fever naturally exhibits—the stages of *depression*, *reaction*, and *subsidence*. The CONGESTIVE TYPE is an exaggeration of the stage of depression; and the stage of depression, you will remember, consists of two things—first the shock, or lowering of the nervous system; and secondly, vascular congestion of the viscera. Exaggerate this and what do you find? You have a person lying in great exhaustion and debility, partially deaf, breathless from pulmonary obstruction, and with a besotted look; the surface of his body is cool and perhaps livid. These are the phenomena which form the congestive type; and if the patient die we find the viscera, the head and lungs and portal system, gorged

with blood, as is not unfrequently seen in yellow fever. Here the patient dies without reaction, and of course your object is to promote it. I attended once in gastric fever a young lady who after the shivering passed into this state. She was stupified, and could not be got to see, hear, or move; her skin was cool and her pulse feeble. We had to force her mouth open to introduce stimulants which she could scarcely swallow. We however succeeded in reviving her, and she soon came out into the ordinary inflammatory stage. The treatment to be adopted when fever assumes this congestive character is a combination of stimulants and derivation. Your object must be to derive as much as possible from the viscera, and at the same time to quicken the circulation. If you do not use means of derivation, as by heat applied to the surface, stimulants may have the effect merely of increasing the visceral congestion. In a few cases it may be proper to abstract a small quantity of blood, if important organs seem to be dangerously congested, but the state is one of essential debility; and while you use hot fomentations, or apply hot bottles to the extremities, you must employ stimulants, of which ammonia and brandy are the best, to quicken the action of the heart.

The reaction is apt to pass into the INFLAMMATORY TYPE. The best example of this is in what writers call the Ardent fever of hot climates. Here the stage of depression is usually very brief, and is rapidly followed by strong reaction. The red eye, flushed

face, the rapid pulse, the heat of skin, the intense headache and frequent delirium; the pains in the back and limbs; all of these point out the inflammatory type. This we not unfrequently see in small-pox, and sometimes even in typhus. I remember a case which occurred in the fever hospital, of a strong young man, my colleague as one of the medical clerks, who was labouring under typhus, and from whom, at his own imperative request, I took sixteen ounces of blood, and thereby I think saved his life. It is important to diminish the over-action, lest it lapse into disorganization; determination of blood will soon pass into typhoid inflammation; coma will follow cerebral excitement. In the fevers of this country we seldom require to bleed, but for the most part find it sufficient to employ antimonial sedatives, saline diaphoretics, and perhaps aconite, and so promote the function of the skin, and restrain the action of the heart.

Much more frequently do we meet with the ASTHENIC TYPE of fever; that is the form which we oftenest have to combat in this country, and it consists of an exaggeration of the natural subsidence, which often however takes place also much earlier than it ought to do. In the typical asthenic state the patient lies on his back in bed unable to turn; with difficulty raises his arms and legs; passes his stools and urine involuntarily, and perhaps is covered with perspiration; the pulse is feeble and rapid; and he is so much in danger of death by syncope, that it is very hazardous to raise such a patient into the

sitting posture. Now it is of importance to know how to treat these symptoms; but it is of even more importance to know how to ward them off. Never forget in the treatment of fever, and especially of typhus, the danger you run of this depression coming on, and remember how it arises. Poison has taken hold of the blood and of the nerves; the system is deprived of food, and at the same time a waste of tissue goes on more rapidly than usual—the fire is burning and is not fed. Then, as Dr. Graves said, “*feed your fevers.*” In most cases the state of the digestive organs is such that solid food cannot be taken; usually till the period of complete convalescence you have no digestive faculty; the power of the stomach is suspended. But the patient can make use of soup, beef-tea or chicken-tea, because that requires no digestion, and undergoes at once assimilation and transformation into nourishment for the system. Farinaceous substances too are not without their use, soothing and sheathing the intestines; but in the height of fever they are probably not digested. As soon as the tongue by its moisture at the edges gives indication of the return of the digestive power, food of this kind may be more freely given. If to your patients in fever you give freely animal soups in frequent small quantities, you will in many cases ward off that depression which otherwise you might not be able to combat. Again, watch carefully the state of the heart. It is the heart’s failure which is the cause of the asthenia and of death from syncope. Listen with your stethoscope to the first sound as the

index of its power. The indication of its weakness is softness and ultimately complete disappearance of that sound; and as soon as there are any signs of this you should begin your stimulation. This state of the heart is seen especially in typhus. When the body is inspected after death, the heart is found soft and flabby, and its colour somewhat resembles the hue of a dead leaf; you can force your finger through it easily. This softening of the heart is remediable, and the patient will recover if you can only meanwhile "obviate the tendency to death." Wine and brandy administered hour after hour are the means most likely to sustain the flickering flame of life, and thus you may succeed in carrying the patient through this dangerous period. Carbonate of ammonia has been recommended, but from it I think you will gain no advantage equal to that to be derived from alcohol. If the stomach be irritable, diluted brandy is better than port; and if it be very irritable, champagne lies on it more easily than brandy. Compare a patient in fever of this asthenic type with one in collapse from cholera. In the latter case it is not the heart which is in fault; the heart beats on to the last. It is the blood which has been deranged, having got so thick that it will not circulate; it has got so thick that the heart cannot drive it. Here what is wanted evidently is to dilute the blood, as by the drinking of cold water; but in the fever case the blood is thin enough, and what we want is to stimulate the heart and keep up its action. Now I would recommend that in ordering

stimulants to patients in this state, you should be very attentive in prescribing them—it may be a table spoonful every hour or every two hours—but do not leave it in the power of the nurse to alter the dose according to her discretion. If she be told to discontinue the wine if the patient get heated, she is apt to take alarm at some slight temporary change, and give up the stimulants when their continuance is most important. If you expect any change in the patient, only go back all the sooner, and you will save yourselves a great deal of vexation in these cases. Thus you continue the treatment for a certain time, when all at once the patient, who had been readily taking the wine, begins to loathe the very look of it. This is an indication that he has had enough; that the period of depression is over; and that the vital powers are so far restored as to be beginning to do their work of themselves.

These three types of fever, the Congestive, the Inflammatory, and the Asthenic, being exaggerations of the three successive stages of the malady, can never co-exist; but it is different with the next three types, the Nervous, the Septic, and the Typhoid, which may occur combined.

The NERVOUS TYPE is very much what surgeons call irritative fever, and it is apt to occur wherever the system has been previously weak and irritable. Thus in puerperal cases we have it frequently; the woman is weakened by hemorrhage, she is anxious, and afraid of the result. In her case the least thing is apt to bring on shivering, and when

reaction takes place and fever occurs, it assumes the nervous type, and she is anxious, restless, and sleepless. The senses become very acute; she cannot bear the least light or sound, nor can the skin receive the slightest touch without pain. Concurrently with these symptoms, the assimilative system also gives token of irritation; the skin is dry, the tongue red and pointed, and you have a complication of general nervous excitement, with the asthenic type of fever. The treatment therefore must be directed against these two states. The objects are to keep up the strength and to soothe the system into quiescence. This we attempt by the exhibition of food, stimulants, tonics, and narcotics; in the forms chiefly of beef-tea, wine, infusion of cinchona, and morphia—the last often best used as an enema. I remember a case in which typhus fever put on this nervous type. I was called to attend a young man, a student of divinity, who laboured under a well-marked ordinary eruptive typhus. It had been running on for a fortnight. He had had no sleep for two nights, and on my arrival I found him in a state resembling delirium tremens, with rapid, feeble pulse, and freely perspiring. He was sitting up in bed, swaying himself to and fro with his pillow in his arms, and considering it to be a baby, was hushing it to sleep. I administered a pint of porter and half a grain of morphia, but there was no good result; the dose was repeated, he slept for twelve hours, and awoke calm and well. It was an unusual occurrence in typhus, but it is a well-marked example of fever assuming the nervous

type. We must recollect that sometimes it is not all mere nervous excitement. There may be real vascular derangement in the head, in which case you may have to apply leeches to the temple, or behind the ears; but as you will remember that debility is combined with the excitement, you must not use too many. A mustard plaster to the nape, and wrapping the feet in flannels wrung out of hot water will be safer than depletion. Camphor and musk are useful.

The SEPTIC TYPE is the worst. It consists in an excess of the tendency of the blood to dissolution. Bleeding occurs from various parts. Purpuric spots come out over the whole body, and large ecchymoses, as if the patient had been beaten. The blood is often quite uncoagulable. These cases are very fortunately rare, but with us they occur in small-pox sometimes, and in that fever they are generally fatal. Yet the nervous system may be sound. Dr. Gregory describes a fatal case of septic small-pox, in which there was no disturbance of the mind whatever, nor the slightest agitation of the nerves. On inspection of the bodies of persons who die under this type, we find congestion of the viscera, which are soft, gorged with uncoagulated blood, and it may be of a purplish livid colour; and the proneness to decomposition is shown by the fact that generally before such a patient dies there is a foetid odour exhaled from the body, proving that disorganization has already commenced in the molecules of the tissues. I wish I could tell you how you

might cure these "putrid" fevers. Stimulants you must use, because asthenia is present too. How to correct the blood—there is the difficulty. The good effects of turpentine in purpura may justify its use here, and in puerperal fever it has been employed with satisfactory results. Chlorate of potash has also been recommended in large doses, but I am not sure that it deserves the encomiums which have been bestowed upon it. Some have proposed tincture of iron, and in certain cases, as in erysipelas, it has been found to be of use. We cannot call any one of these a specific for this state of the blood, but I should be inclined to trust most to the use of the oil of turpentine in small doses, and to keep up the strength of the patient as in the asthenic type.

One of the worst also is the TYPHOID TYPE. We must distinguish this from the so-called "typhoid fever," which is a fever accompanied by a specific ulceration of the bowels; and it would be better to use for that disease a word implying this special characteristic, than to apply the name of typhoid to any individual species of fever. Any fever may put on the typhoid type. This type appears to me to be an excess of that general derangement of the assimilation which can be traced in every fever. There is usually also a combination of the asthenic and the septic types, a poisoned state of the blood with a depressed state of the nervous system. You may see both these in well-marked examples of the typhoid type. The patient is in a state of stupor more or less deep; he lies with his pupils contracted, uncon-

scious of what is going on around him ; the skin is dusky, with a cool perspiration upon it ; the pulse is rapid and feeble, the tongue dry and black, the teeth are covered with sordes, and there is subsultus. All these phenomena are often combined with the purpura that indicates the septic type. The case is very difficult to deal with, and how to get rid of the poison we know not. How even to mitigate these symptoms we scarcely for the most part know. We can but wait, and keep up the patient's strength. But let us try to promote elimination from the blood. While we dare not purge in such cases, we must see that the bowels be kept open, and that elimination be encouraged both from them and from the kidneys. Warm laxatives may be administered cautiously, and we may give stimulating diuretics, as sweet spirits of nitre ; and may substitute gin for brandy. And thus, after also putting in practice the other parts of the treatment of asthenic fever, we sometimes succeed, contrary to our expectations, in carrying the patient through.

These are the *eight types*, one or more of which any fever may assume.

Now what are the FORMS which fever may assume under any type ? There are five.

The simplest form is *ephemera*, where the fever lasts but one day. It consists of a shivering, a reaction, and a gradual subsidence. This is a form of slight fever generally induced by cold in the puerperal state. But sometimes we are deceived in its duration. About the same hour next day another

shivering takes place, to be followed by another reaction, which subsides towards the evening. This is an *intermittent* fever, of which the typical kind is malarious ague, with its cold, its hot, and its sweating stages, and then its intermission; the disease to be repeated with the same three stages. In many cases the patient who has been exposed to malaria never thus gets out of the fever. He gets somewhat better for a time, but not well, and very soon relapses. This is called *remittent* fever, and it gradually passes into the ordinary form, where we have no interruption, no pause, from the beginning to the end of the complaint, which is *continued*, though of various duration. In slighter examples it may be very brief. In many cases of scarlatina the disease is over in a couple of days; but you may say that the typical duration of continued fever in this country is fourteen days. Lastly we have the *relapsing* form, in which an interval of nearly a week's duration intervenes between two similar attacks of brief continued fever. This, as we shall see, is produced by the action of only one fever-poison.

So far for pure fever, which may occur and kill under these various types without any local affection. But though it *may* so kill, it generally speaking is attended, before it proves fatal, by some local COMPLICATION. These additions to the fever may arise in various ways. Some in consequence of *pre-existing disease*; as, if the patient labour under chronic bronchitis or disease of the heart, it will go very hard with him in fever. Some from *occasional causes*, exposure

during the fever, improper food, and so on. These are causes which ought to be obviated, but are sometimes productive of very bad results. The complication may arise from *tendencies special to particular fevers*, as measles is very apt to bring with it affection of the lungs. It is sometimes due to *the nature of the epidemic* prevailing at the time; thus in certain epidemics of scarlatina, there are apt specially to occur rheumatic pains. Lastly, *the constitution of the patient* may determine one complication more than another, since it is observed that persons of education run more risk than others when seized with typhus, because the fever is much more apt to go to the head. Most of these complications belong, as it were, to certain particular fevers, as bronchitis accompanies measles; but there are one or two which are so general that it will be well to consider them now. I shall speak under measles, of bronchitis; under bilious fever, of affection of the liver; under enteric fever, of disease of the bowels, and so on; but here I shall notice cerebral affections and pulmonary congestion, because they occur frequently in almost any kind of fever.

We have two forms of cerebral complication, consisting, the first in determination of blood to the brain, the second in congestion; the first being attended by maniacal excitement, the second by stupor deepening into coma; and the one will lapse into the other. *In the first form* there are flushed face, red eye, and a violent fierce delirium. This is generally implanted on the inflammatory type of fever. We see this maniacal form in typhus, and it

occurs in the malarious fevers of warm countries ; but much of the delirium is due to mere nervous excitement ; beware then of treating it as if entirely inflammatory. One of the commonest symptoms we meet in fever is headache, but that is no certain sign of determination of blood to the brain. Generally when a patient begins to be delirious, headache is no longer complained of ; and it is remarked, and I believe with justice, that if he still complain of headache through his delirium, you have good reason to fear that there is actual determination of blood to the brain, if not inflammatory action there. Mere headache is like the pain of the back in fever. In all these cases let the head be shaved, let leeches be applied if necessary, but in moderate number, and apply cold to the head by cloths kept continually wet. Quiet the pulse with aconite, or with antimony provided the patient's bowels are not irritable. If there be any sign of intracranial inflammation, if for example severe headache still continue, if the pulse become firmer and sharper, if sharp pains dart through the head, further depletion, and even mercury, may be required, but this is an exceptional occurrence. I have opened a great number of bodies of persons who have died in fever, and I do not recollect more than two instances in which we found marks of real meningeal inflammation—of effusion, that is, of lymph as well as serum on the membranes.

For the most part the patients in these circumstances die comatose, gradually falling into *the second form* of cerebral complication, which resembles in

many points poisoning by opium ; stupor insidiously comes on, gradually deepening down upon the patient. At first you can rouse him ; by and by you cannot rouse him at all ; ere long he dies in coma. On post mortem examination we usually find serous effusion, and congestion of the brain ; but remember that turgidity of the large veins may be produced by mere cadaveric subsidence, the substance of the brain itself being as pale as usual. In such a case there has been no true cerebral congestion, and the stupor is to be attributed chiefly to the opium-like narcotic effect of the fever-poison, just as you have delirium and stupor from the carbonic poisoning of bad bronchitis, or when urea or biliary matter are retained in the blood ; but real congestion of the brain does without doubt occur. I have frequently found the small veins of the pia mater all gorged with blood, as was also the cerebral substance itself, from the cut surface of which started a multitude of red dots marking the orifices of the divided vessels. How are we to treat this congestive form of head complication ? Usually the patient is too weak for any depressing remedy, so that leeching is out of the question. Blistering is our sheet-anchor, but the blister must be a large one. See that it be large enough to cover the head from the brow to the occiput ; this sometimes marvellously removes the coma. There are also two substances, anti-narcotics they might be called, which may be used in this form of cerebral affection. A strong infusion of *green tea* is sometimes useful in helping to bring the patient out of

stupor; and as regards *turpentine*, I presume that it acts the part of an alterative astringent, and forces the blood out of the congested organ, or produces, as in purpura and syphilitic iritis, some unknown specific change upon the poisoned fluid.

LECTURE III.

FEVER—ITS COMPLICATIONS; ITS SEQUELÆ; GENERAL MANAGEMENT OF A FEVER CASE.

IN beginning the study of fever, remember it is of the utmost importance that you should dismiss from your minds the idea that it is necessarily connected with any local malady. It is of importance that you should confirm yourselves in the opinion, which is the true one, that essential fever, as it is called, really exists, and therefore that the complications which we are now engaged in considering are accidents only of the malady. Yet are they most serious, too often fatal accidents; many a time all seems going well, and we are confidently expecting a happy issue of the case, when our hopes are dashed to the ground by the occurrence of some visceral affection, which turns the scale against our patient, baffling all that we can do to save him. Of this sort are the cerebral affections of which I have spoken; that depending upon determination to the head, and that consisting in congestion of the brain.

There is but one more which I think it necessary now separately to consider; namely, *pulmonary con-*

gestion, a very frequent and a very dangerous complication. It is indicated by more or less oppression of breathing ; yet the patient's head is sometimes so stupified by the fever-poison that he does not complain of it, so that a careless observer might suppose he was breathing quite easily. Every kind of hard breathing, however, does not depend upon pulmonary congestion. There is what has been called " cerebral respiration," irregular, variable breathing, produced by some head disease ; this, of course, you must separate from the case we are now considering. One of the most important points in the diagnosis of pulmonary disease in fever, is that the respiration is rapid in relation to the action of the heart. Naturally, as you may be aware, there are for every respiration about four beats of the pulse. If this ratio be disturbed—if, for example, there are but three beats of the pulse for each respiration, then we know that there is some affection of the lungs. To a pulse, for instance, of eighty there ought to be twenty respirations ; if with the pulse still of eighty, they rise to thirty, we know that there is something wrong. This is a very valuable indication, and often informs you of the presence of pulmonary complication in fever when the patient is neither coughing nor complaining of want of breath. The affection is, as I have said, congestion, or if inflammation, it is inflammation of an asthenic, congestive character. The sensibility of the lungs is rather dulled than rendered more acute ; and thus we have not that cough and irritation which such disease would in other circumstances produce. Whence the tendency

to this complication? It arises from the loss of tone of the capillary vessels consequent upon the action of the fever-poison, and from gravitation, as the patient constantly lies upon his back. In extreme cases of typhoid debility you have these two causes acting together, and the pulmonary congestion hence resulting is often dangerous and little capable of being relieved; while if actual inflammation be superadded, it is masked and obscured by the causes I have mentioned; and more or less stupor also generally accompanies this state of matters, a stupor depending upon cerebral congestion, with which it is difficult to deal. Now there is a peculiar stethoscopic sound which indicates this condition of the lung. It is not the clear sibilus of bronchitis; it is not the crepitation of pneumonia; but it is indistinct crepitation of a peculiar raucous character, with weakness of the respiratory murmur. This is chiefly noticeable at the inferior and posterior part of the lungs, where the percussion is generally also somewhat dull; but inasmuch as both lungs are usually affected, little difference of percussion exists between them—the absolute degree of dulness cannot be easily appreciated. The symptoms, however, which I have mentioned are sufficient to enable you to form your diagnosis. And though the patient is often so weak that you cannot move him so as to have his back examined, yet if you find the respiratory murmur puerile in front, you may be almost sure that the back part of the lung is congested or inflamed. If he die you find it semi-solid, of a dark purplish-red, thoroughly

congested, and sinking when thrown into water ; but frequently capable of being made to float by having the serum first squeezed out of it.

The treatment of this complication is very difficult. We have to deal with the debility and want of tone of the vessels. We have to deal also, in many cases, with the patient's incapacity for lying in any other position than upon his back ; and thus too often, when this affection is well-marked, we find it impossible to obtain a cure. Generally speaking there is asthenia, and stimulants as I have explained, are needed. Opium in any such case is for the most part out of the question ; it would increase the tendency to coma and asphyxia. Besides alcoholic stimulants with decoction of senega, carbonate of ammonia and camphor are perhaps our most valuable remedies in this state of matters, with, locally, dry cupping and turpentine stupes ; while blisters may be applied for a short time only, so as to produce a powerful derivation to the surface. Oil of turpentine in doses of twenty minims is sometimes as useful in this as in other asthenic congestions of fever ; and if suffocation be threatened by the gathering mucus of the smaller bronchi, an emetic of sulphate of zinc or mustard may, for the time at least, ward off the danger. If the dulness on percussion be so marked as to prove that there is typhoid pneumonia, I believe the best additional thing we can do, is to give the patient whatever chance of benefit there may be in the mercurial action ; and that blue pill and squill, with quinine, may yet save him. There is nothing

contradictory in combining tonics and stimulants with mercury.

Having passed through the different phases or types which fever may assume in its course; having got over any complications which occur, the patient in favourable cases begins to recover. Now recovery may take place in two distinct ways—first, and I think by far most commonly in every kind of fever, by a gradual and slow *convalescence*. There is no sudden amendment, but gradually the symptoms yield, the pulse falls, the skin becomes moist, the tongue less dry, the brain more steady, the patient begins to be less thirsty, and to have a greater desire for food; his countenance loses the stupidity or the excitement of the fever, and altogether he is palpably much better, and so he gradually goes on from day to day till he gets fairly well. In a minority of cases, however, there occurs what is spoken of as the *crisis* or “turn.” It may be by the patient’s falling fast asleep; he has for some time been excited, delirious, constantly restless, but now he falls into a quiet, sound sleep, from which he does not awake, perhaps, for many hours, and then he has evidently, as the nurse will tell you, “got the turn.” Of course you will not mistake such a sleep for stupor. It would be a great error to apply a blister to the head of such a man, and nearly as bad a thing to rouse him by your rude examining; but his countenance will have a very different appearance from that of a patient lapsing into stupor—a quiet comfortable look; the breathing will be soft and gentle as in common sleep. Let him alone.

The next form of crisis is by sweating. In some fevers, indeed, this is but a symptom of the disease, and not an indication of convalescence; so it is in rheumatic fever, as we have seen, and in the relapsing bilio-gastric fever it also occurs in the acute stage. But in the majority of fevers we find perspiration generally indicative of a favourable turn. In cases evidently moribund, indeed, the body often breaks out into a copious, clammy sweat, the immediate forerunner of death; but usually if a warm, comfortable moisture appear, you may expect to have convalescence soon established. Typically, as you are aware, this occurs in ague, of which the convalescent period is proverbially called "the sweating stage."

Thirdly, we find *purging* sometimes the indication of a crisis in fever. Here also we have an occurrence which in some fevers, as in the gastric and enteric sorts, is one of the most marked and most dangerous symptoms of the malady, but it is not, in most, a necessary symptom—not in the exanthemata, for instance, or in typhus. I have seen, once and again, convalescence from typhus immediately preceded by copious diarrhoea—the purging of a large quantity of brown, most fetid matter. Here again there would be a great error in attempting to stop such looseness, being, as it is, the evacuation of morbid matter which has been pent up either in the bowels or in the blood itself. You must of course here, as in other cases, judge what is to be done, not by one symptom alone, but by taking all the phenomena of the case together. If other things are going on well, moderate diarrhoea

need give you no concern. If, on the contrary, the purging be accompanied by exhaustion, and by other marks of the patient's becoming worse, then of course it is necessary for you to step in and check it.

But we are not yet done with the case. The patient has not yet got beyond the danger of something going wrong. There are, as they are called, SEQUELÆ, or occurrences which are apt to follow fevers, and some of them are more dangerous even than the preceding disease itself. Some of these sequelæ—the renal dropsy, for example, which follows scarlatina—are so peculiar to particular fevers, that under these they are best considered; but there are a few affections which, like the complications of which I have spoken, are common to many fevers, and which therefore, I shall notice now.

Some of these occurrences are usually caused by palpable carelessness—the exposure of the patient, during the weakness of his convalescence, to cold; the introduction of indigestible food, or of too much digestible food, into his stomach; mental excitement, and so forth. But others again arise, almost any of them in fact *may* arise, without any such known cause. The first thing for the most part that gives us warning that one of these sequelæ is about to occur, is a rigor. The patient has a shivering, and then he feels unwell, and the disease appears. The commonest of all, particularly in hospitals, is perhaps *Erysipelas*. It occurs familiarly after ordinary typhus, and is generally a tedious, often a dangerous, not unfrequently a fatal affection. The patient, already weakened, is little

able to resist the additional strain upon his vital powers—for erysipelas, as you will hear by and by, is itself an asthenic fever—and he sinks under the exhausting concomitants of the disease. Erysipelas may affect any part of the body, but typically it seizes on the face and head. After the shivering, the patient complains of pain in the face, on the middle of the forehead, or on one cheek. A redness follows, spreads from cheek to cheek, and ascends over the head. Sometimes the swelling is very great, sometimes the eyelids suppurate, their loose tissue becoming converted into a bag of pus, so that large incisions have to be made to evacuate the sloughs, causing, however, very little ultimate deformity. Sometimes erysipelas is accompanied by delirium, a delirium for the most part merely symptomatic; but in a few cases decidedly the consequence of inflammation within the cranium. I have seen a case where such delirium was traced on dissection to true inflammation of the arachnoid, which was dotted over with lymph. In the treatment of this post-febrile erysipelas, we must remember that it is asthenic. The patient will not bear depression, we must keep up his strength, and treat the case in short, in spite of the fiery redness, as you treat fever of the asthenic type. I have never convinced myself that *local* treatment was in these cases of much avail. I have used fomentations, puncturing, nitrate of silver, and other remedies; but I am not aware that they did any real good. The only way in which I think I have in some cases cut short the disease, is by giving an emetic immediately

after the rigor. I have imagined—although of course we cannot say what the disease would have been without that remedy—that thus I have cut short post-febrile erysipelas. And this is of great consequence, because such erysipelas is very apt to put on a more dangerous form than any I have yet mentioned.

It sometimes attacks the fauces, and descends to the opening of the larynx, causing suffocation by producing *Edema of the glottis*. This is one of the most dangerous of all the sequelæ of fever. It occurs after typhus; it occurs after small-pox. Sometimes, as I have said, it follows erysipelas of the head. At other times it takes place alone. In pure oedema of the glottis the patient complains of scarcely any pain in the throat; but there is rapidly increasing difficulty of inspiration, which is stridulous, the expiration being comparatively easy: you can hear the stridulous croak at a great distance from the patient. I saw many such cases when clerk in the Fever Hospital here years ago. There was one winter when typhus was very rife. The house was full, and we had more than a score of cases of this post-febrile oedema of the glottis, and many of these people died. In some of them we found no redness of the mucous membrane, but only watery swelling of the tissue covering the glottis, which had closed the rima, and suffocated the patient. It is important, however, to observe, that the swelling is always *above* the true vocal cords. It is the tissue about the arytenoid cartilages and the upper orifice of the larynx which is swollen and infiltrated; so that you may save the patient by

making an opening in the crico-thyroid space, and you do not require to cut into the trachea. Of course there are the ordinary difficulties to combat—the necessity of keeping the trachea clear of mucus which the patient cannot cough out, and that of seeing that no cold air be introduced into the lungs, so as to produce the complication of bronchitis; but these may sometimes be happily overcome, particularly if the operation be not too long delayed. I remember a medical student, convalescent in one of the side-rooms in the fever-house, whose death occurred in a most unfortunate way. He had distinctly some œdema of the glottis, some degree of the stridulous inspiration which I have described; and a consultation had been held to consider the propriety of operating. A short delay was decided upon, to see whether the disease would not yield to other remedies. In the meantime he suddenly died. He had turned round in bed in the nurse's presence, and all at once he ceased to breathe. On inspection we found that the œdematous swelling affected but one side of the glottis; and when he turned round on his other side, the flap of swollen mucous membrane fell into the vocal chink and choked him. From this case I drew the conclusion, that where the stridulous breathing is thoroughly established, and is not relieved by scarification of the swollen epiglottis, it is well to operate without delay. If you do not, the lung is apt to become congested, and your subsequent operation is not so likely to end in recovery. And yet no case is hopeless:—I recovered two patients by laryngotomy and artificial respiration,

after they had ceased to breathe, and lay to all seeming dead.

But there is another form of the post-febrile œdema of the glottis, which ends for the most part fatally—a form in which the affection I have just described is complicated with actual inflammation of the tissue in the neighbourhood of the larynx. You have ulceration of the mucous membrane, and you have abscesses formed in the tissue around the larynx, and the pus may find its way in various directions, burrowing even between the pharynx and the spine. In these cases you will always have pain complained of, and tenderness when the larynx is touched or moved; and generally speaking, the patients die.

Another not unfrequent sequela of fever is *Inflammation of the parotid gland*. After the rigor which I have mentioned, you have swelling of the gland, sometimes to a very great extent, usually on one side only of the face. There is considerable tenderness, and gradually suppuration is established, the pus infiltrating the tissue of the gland, the lobules of which, however, are usually undissolved, being merely dissected from one another by the disease. *Abscesses* of a more ordinary kind often form as sequelæ to fever. They are, for the most part, what old authors call *cold abscesses*—chronic that is to say, and accompanied with little febrile irritation, and perhaps no pain; so that, in fact, a bag of pus is formed before the patient well knows that there is anything wrong. These abscesses occur in many places, being rarely solitary; coming on successively,

and of various size, they are sometimes the occasion of prolonged convalescence.

There is but one more sequela which I will now consider, and it is a very important and invariably a fatal one. Sometimes a patient will be recovering very well from fever—say from typhus—when he has the rigor which I have described; and after it he is much worse than you would expect him to be were he only about to take erysipelas. His pulse is exceedingly rapid; he is exhausted, and, in particular, complains of pains in his joints—in his ancles, wrists, elbows. He becomes very ill. Asthenia is developed, and the most ominous symptom is jaundice: his eyes and skin become yellow. There is swelling and redness about the joints, and he has considerable pain when they are touched or moved. These cases all die, and as far as I have seen, they die rapidly, with symptoms of poisoning of the blood, like cases of the worst puerperal fever, or pyæmia after surgical operations. I have seen some dozen of them, and upon inspection found the synovial membrane injected with blood and bathed in pus—pus not the result of ulceration, but the primary secretion from the inflamed membrane, as in purulent ophthalmia.

Having said thus much upon the nature and course of fever, it will be well that I should give you a few hints as to the general management of the patient. First, it is necessary to see that he be placed in a comfortable airy room. I must say of Glasgow—I do not know how it may be in other towns—that,

unless in our best houses, the bedroom accommodation is very much sacrificed to that of the public rooms; and the sick man is very apt to be cooped up in a small airless chamber, when he might—when he ought—to be established in the best part of the house. It is of the greatest importance for his own sake, and to prevent the spreading of contagious fever, that he should have plenty of fresh air. Too often you find the sick-room filled with furniture, much as if it were an upholsterer's shop. I would recommend you in the first place to have the room cleared of everything except what is essential to the comfort of the patient and his attendants. Then let these attendants be well selected; let the nurses be not only kind, but judicious and experienced, if you can possibly attain it; let them be instructed, as far as may be, in the proper management of a fever case; let them be told not to plague the patient with continual inquiries as to how he feels, or investigations as to his symptoms, but to allow him to be quiet when he chooses. Let him have light also if he wish it; I think this is often of importance. There are patients whom the light disturbs, and from whose rooms it ought to be excluded; but there are also many who are cheered and invigorated by its being freely admitted. Above all, let there be no talking to one another on the part of the nurses. All necessary communications ought to be spoken in a clear distinct voice, without whispering. There is nothing that so irritates and excites a sensitive patient, as hearing people whisper beside him. Then he ought to be laid, not upon a feather

bed, but upon a mattress. You must remember that it is quite possible that in the course of the disease much changing and shifting may be required, and that it is very difficult to manage a patient lying on a soft bed. He ought therefore to be upon a firm mattress; and you must have arrangements made so as to keep it dry, a large sheet of water-proof cloth being laid immediately above it. And for the shifting of the patient, it is of necessity that you have not only a kindly, judicious, and well-disposed, but also a *strong* nurse—some one who has power in her arms to lift and manage him; otherwise you give him a great deal of fatigue in addition to what he must needs undergo.

Next, as a general rule, when the fever is likely to be severe, you ought to shave the patient's head, so that you may obviate, while yet it is time, any tendency to determination or congestion of the brain. Of course in the milder forms this is unnecessary. The head being shaved, may be sponged regularly with tepid water; but where cerebral determination has actually set in, cold water ought, as I have already said, to be kept constantly applied to it. You may be aware that the cold affusion has been suggested as exceedingly useful in various fevers, particularly in scarlatina. I think, however, that in few of the cases of fever with which we are conversant at present, could the cold affusion be borne. Tepid sponging is much safer and more useful, unless the patient be very hot indeed, and very much excited.

But there are other things which must be attended to—in the first place, food. I have already said a few words upon this subject, pointing out to you the importance of supplying him with appropriate nourishment as soon as you possibly can. The state of his stomach, and his feelings with respect to food, will be your best indication for what he ought to have. If the tongue be dry, hard, or covered with black sordes, there is no appetite, and there is no power of digesting, scarcely even of absorbing nutriment. But the least moisture at the tip or the edges of the tongue indicates that there is some capacity for absorption, whether there be much power of digestion or not; and when this is seen, you should have no hesitation in administering food, such as beef-tea or chicken-soup. Much of it may possibly pass through without being made use of; but even although the stomach be unable to digest, the mucous membrane may absorb, and you may hope to have at least partial assimilation. As soon as the patient desires food, you ought to give it, either in the form of pure soup, or of farinaceous substances, such for instance as arrow-root; but you ought not to give the patient *solid* food till convalescence is fairly established. The stomach is previously unable to digest it, and it would be very likely to induce some serious visceral complication. I have seen a patient, thoroughly convalescent from typhus, thrown into what exactly resembled gastric fever by such imprudence. The patient's drink must also be carefully managed. The point is to give it him in small quantities at a time. He would drink

by the tumblerful; he ought to have it by the spoonful only. In this way you quench his thirst as well, and you avoid undue distension of his stomach. Various drinks may be given. Generally speaking, cold water is most approved of by the patient; and a bit of ice now and then is often exceedingly refreshing—soothing the hot mouth without flooding the stomach. Thirdly, the state of the alvine evacuations ought always to be carefully attended to. The bowels ought not to be allowed to be constipated. In some fevers which are accompanied by diarrhoea as part of the disease, we require, as we shall afterwards see, to check that looseness. In ordinary fevers we have rather to prevent the opposite condition, and by mild laxatives to maintain the secretions of the mucous membrane, and keep the bowels gently open. The feverish symptoms are usually decidedly relieved by this proceeding.

The state of the bladder always requires to be watched in severe fevers. When the patient becomes unconscious, it is very apt to be passively distended. He loses the power to void the urine; he loses also the feeling of the need to do so; and it is not enough for you to trust the report of the nurse that the patient is continually making water. The urine, in fact, is dribbling away because the reservoir is overflowing. Therefore it is your duty, in bad fevers, to watch the bladder from day to day, introducing the catheter if you find that there is any distension; and this may exist without much swelling above the pubis, the full bladder sinking down into the pelvis.

Further, you must as far as possible guard against the very troublesome occurrence of bed-sores. They are of two kinds; we have, in the first place, superficial abrasions, which arise from the friction of the skin upon the wet sheets—sheets allowed to become wet for the most part by the culpable carelessness of the attendants. In other cases of asthenic fever they arise as sloughs, from the continued pressure of the body upon the mattress; and the slough falling out, leaves often an extensive, always a most troublesome sore. Now these sores are to be avoided, first, by sparing no pains to keep the patient perfectly dry; and secondly, by taking every care to keep him, as much as may be, from bearing with his weight always upon the same part. And you ought not to put off taking these precautions until you see the bed-sore begin to appear. Attend to it from the very first in every serious case, and arrange by soft pillows or annular air-cushions, so as to distribute and equalize the pressure as much as possible; and thus you will often succeed in preventing these sores, and their sometimes fatal consequences.

When your patient is convalescent your care ought not to be at an end. There are three things of which the convalescent ought to be carefully warned:—First, of the danger of exposure to cold. He is so weak that cold will at once produce nervous depression and visceral congestion, and a very slight chill will suffice to bring on some of the sequelæ which I have discussed. Thus pneumonia arises; thus arises bronchitis after measles; dropsy after

scarlet fever; pleurisy after small-pox. The first case I ever saw of oedema of the glottis was in the person of a man who went out quite convalescent from a severe attack of typhus. He was in going home exposed to a draught of cold air: the next day he died asphyxiated.

The second advice you ought to give to your convalescent, is to take care not to eat too much. His appetite becomes voracious; if he be a child it seems almost cruel to withhold it from his urgent entreaties. He cries till the meal appears; and when it comes, he cries because there is not enough. Yet you are to impress upon the attendants that he *must not* be overfed. He properly desires food; that is to say, his blood requires it that it may be renewed; but the intermediate part—the stomach—is not ready to perform its functions fully. The digestion is not so active as the nourishment is necessary. I remember one very distressing case, in which the patient, who was perfectly convalescent from a severe attack of gastric fever, and able to walk about his room, indulged himself in eating a bit of meat. The immediate result was that he had a relapse, under which he sank and died in the course of less than a week. Subsequently a little to this stage—I mean the stage of excessive hunger—the patient fattens, showing that the powers of assimilation have increased beyond their ordinary limit. The emaciation is in proportion to the duration, rather than the sharpness of the illness; but if you take Dr. Graves' advice, and as much as possible "feed your fevers," I

can assure you that you will have the convalescence shortened, and that you will have to deal with patients not so emaciated, not so hungry, as if you had held to the old saw—"Starve a fever."

There is one precaution more which you ought to advise your patient to take—that is, to beware of undue mental excitement. He is weak, particularly after a fever of the nervous type, but does not know it; he is also excitable—glad to see his friends—and talks perhaps for half an hour without feeling in the least exhausted. In the evening, however, we have languor, exhaustion, and then a relapse, or some sequela. It is of great consequence that convalescents should be kept quiet till their strength is thoroughly established. This holds especially in the case of children. Brothers and sisters go in and play beside the patient; he is excited, loses the rest he needs, and next day is again feverish: his tongue is red, his digestion deranged, and his recovery indefinitely postponed.

These are all the remarks which I have to make to you upon fever in general. We are now prepared to condescend upon the individual fevers. We have got some notion of fever, irrespective altogether of any particular poison. We have cleared our minds, in the first place, from the false idea that fever is always symptomatic of some local affection; and we have satisfied ourselves that what is called Essential Fever does exist, and that it may also kill the patient without any local lesion. We have seen that it presents a variety of characters, and phases, and

modes of action, irrespective of the special cause which set the fever agoing. And now having looked at it in these points of view, we are prepared to go down among the different poisons ; and our consideration of the effects which they produce will of course be much facilitated and much shortened by what I have been hitherto telling you ; because if in speaking, for example, of scarlet fever, I mention the asthenic or the inflammatory type, you at once understand all the phenomena I mean thereby to describe. We shall therefore to-morrow begin to take up the individual species of fever one by one. ,

LECTURE IV.

THE CLASSIFICATION OF FEVERS.

SIMPLE FEVER; THE EXANTHEMATA;
CHICKEN-POX; SMALL-POX.

WE have now given full attention to the chief phenomena of fever taken in the general; and we are prepared to advance to fevers in particular, our consideration of which will be much simplified by the knowledge we have acquired of the various types and characters which they may assume. Instead of repeating this at length under each individual fever, all we shall generally have to do will be to refer to what I have already said.

How shall we classify the fevers? The answer rattles in on us from a hundred voices with a Babel-sound—so active is the arranging tendency of the medical mind, and so complex oftentimes and multiform the issue of its working. It is not a very hopeful task, but some order *must* be taken with the subject; and I think we may distinguish and arrange fevers simply at least, if not correctly, in a classification which may serve our present purpose, the rather that our concern now is with Therapeutics, not Nosology;

and that we usually have to deal clinically with but one fever at a time.

There are then at least sixteen distinct fevers, which may without much straining be placed, in furtherance of our object, under six heads. Cast your eyes with me on the board :—

ARRANGEMENT OF THE FEVERS.

I. SIMPLE FEVER.

1. Ordinary Ephemera and Synocha.

II. THE TYPICAL ERUPTIVE FEVERS.

2. Chicken-pox.
3. Small-pox. (Cow-pox.)
4. Scarlet fever.
5. Measles.

III. THE IMPERFECT EXANTHEMATA, or ordinary continued fevers of this country.

6. Typhus.
7. Enteric fever.
8. Gastric fever.

IV. THE BILIOUS FEVERS.

9. Relapsing fever.
10. Malarious fever.
 1. Intermittent, or Ague.
 2. Remittent.
11. Pestilential yellow fever.

V. THE PHLEGMONOUS FEVERS.

12. The Plague.
13. Puerperal fever.
14. Erysipelas.

VI. THE ADYNAMIC MUCOUS FEVERS.

15. Diphtheria.
16. Influenza.

The great majority of fevers arise, as we have seen, from poisons, which once introduced into the blood are not soon dislodged, but remain there working each its destined and peculiar mischief; and the fevers which thence result are more or less enduring. We have no direct means of displacing the poison, which must generally be permitted to eliminate itself in the progress of the disease. But there are some fevers which owe their origin to other causes—to cold, to influences acting on the nervous system, often to excess of heat in tropical countries. Thus we have the slighter puerperal fevers, arising from a chill or from nervous excitement. Thus we have fevers in children, induced by their being exposed to cold and wet. These are called SIMPLE FEVERS; they stand at a distance from fevers arising from the imbibition of poison, and they are usually slighter and much more easily managed. The blood is not in the first instance deranged; there is merely set agoing a succession of phenomena, which for the most part subside under simple treatment. You will be able to observe that even in these fevers the phenomena of the disease are very much regulated by the previous health of the patient. If he have a tendency to bronchitis, we get a “catarrhal fever;” if to indigestion and hepatic disorder, a “bilious” one: but indeed this variation is not observed only in the simple, but also in the regular fevers which arise from poison. Thus we find it mentioned by Sir James M’Gregor, that when plague prevailed in the army in Egypt, the cases from the neighbourhood of swampy marshy ground were apt to put on an inter-

mittent type. Simple fever may be ephemeral, and sometimes it is intermittent. We see this in the weid of puerperal women, where the nervous state of the constitution at the time induces a repetition of the attack periodically at the same hour next day. Simple fever may put on the inflammatory type; and this is the celebrated Synocha, so well-known to nosologists. To our bedside observation, however, it is now less familiar, at least in this country. Abroad it goes by the name of Ardent Fever, is caused by fatigue and exposure to a tropical sun; it has the character, and demands the treatment, which I have described to you when speaking of the inflammatory type.

All the other fevers with which we have to deal, and which will occupy us during the time allotted to these lectures, are owing to the introduction of a POISON into the system. Fifteen in number, they may be arranged in five classes. And as is the case with most diseases, we find that one fever lapses into another by gradations of considerable delicacy, so that oftentimes we have no sudden leap to take in passing from one to the other. In the first place, we have the *Regular Exanthemata*; these are typical fevers, and comprise four kinds—Chicken-pox, Small-pox, Scarlatina, and Measles—very common all of them, and presenting points of remarkable interest, being each characterized by the appearance of a distinct and peculiar eruption upon the skin.

The second class of fevers I call the *Imperfect Exanthemata*; they comprise three—to us very familiar here in Britain—the Typhus, the Enteric, and the

Gastric fevers. These three have a close relation to one another, and in fact are thought by some to be but one; from which conclusion, however, I differ completely. They are characterized by the appearance of a less conspicuous rash, which however in many cases is altogether absent. Next, we have fevers distinguished by the common symptom of a tendency to affection of the liver, and bilious derangement. They go therefore by the name of *Bilious* or bilio-gastric fevers. This class comprises three—the Relapsing fever, which occurs but rarely in this country, and only as an epidemic: the Malarious fevers, of which happily we possess in Britain only the milder examples, but which occur very frequently in most dangerous forms in warmer climates, including ague and the remittent: and the pestilential Yellow fever.

Next, there is a class having this in common, that they all tend to produce local inflammations and supurations in various parts of the body. I call them therefore *Phlegmonous* fevers—the well-known Plague; Childbed fever, often as bad as plague; and its ally Erysipelas. And lastly, we have two fevers, Diphtheria and Influenza—both accompanied by great nervous prostration, and both by irritation of the mucous membrane, in the one case of the throat, and in the other of the lungs. This induces me, for lack of a better name, to call them *Mucous* fevers.

Some of these diseases, as I have said, slide one into another; some, as scarlatina and measles, or as typhus and enteric fevers, may exist combined; and by briefly considering the whole series, we may get a

good comprehensive view of fever in general. These lectures being by no means intended to teach you all that is known regarding it, but merely to be an introduction to your study of the disease, I shall not waste your time over that which can be as well learned from books; over minutiae which at the best are wearisome. I shall simply endeavour to mark out the leading points of the different fevers, the special types which they are severally apt to assume, and the particular circumstances which require to be attended to when we come to watch their progress. We therefore begin now with the well-known EXANTHEMATA.

These are highly typical fevers, their course, when no complication occurs to divert it, being remarkably regular:—you can almost prophesy what will take place at any time day after day. Their general characteristic is the breaking out on the surface of the body of a rash or eruption, which however bears no constant proportion to the severity of the symptoms; the most dangerous cases having oftentimes no eruption, while in the mildest it may be most profuse; except in small-pox, where the eruption itself is great part of the disease. These fevers, as we shall see, have characters which enable us to recognize them, even when there is no rash. Sometimes this is very slight, because the case is mild; but sometimes slight or absent, because it is severe. If there be visceral congestion or irritation, the rash may be retracted or drawn in, as it were, so that it scarcely appears upon the skin; but concomitant symptoms will leave you in little doubt as to the import of its absence.

It is remarkable that different Exanthemata may coexist; measles and scarlatina for instance, and measles and small-pox may occur together. One exanthematous fever also may follow close upon another. So a patient recovering from measles, may readily enough take scarlet fever; but one is not usually subject to a second attack of the same exanthem—a rule, however, not without exceptions. I have known a second attack of scarlatina occur within three years from the first, and I have also known a patient die under such a second attack of this fever, or of small-pox. Some of the Exanthemata, as measles, are more apt to affect the young; but they *may* occur at any age. The eruption has certain days for its appearing—that of scarlatina the second, that of small-pox the third, that of measles the fourth day of the disease; but with considerable latitude of variation. Thus measles may break out upon the third, or not until the sixth or seventh day. All these fevers are contagious—all of them *very* contagious, especially toward convalescence; and there is no evidence that they ever arise from any other source than this—each from a previous case of the same disease.

The first and slightest is the CHICKEN-POX: it is a very mild, but a very typical fever. Some consider it to be a form of small-pox; but my mind is quite made up to the opinion that it has nothing to do with that disease, although there is no doubt that “modified” small-pox sometimes *looks* very like it. Chicken-pox is not prevented by vaccination; chicken-

pox gives no immunity from small-pox, and I believe them to arise from different poisons. After the feverish attack, a crop of vesicles—not pustules—appears; sometimes they are scanty, not more than half a dozen altogether; at other times there is a very copious eruption. Occasionally I have seen the child confined to bed by the fever for a day or two; but usually even this is unnecessary, and little treatment is required. Of course the chief point is to decide whether the case may not be one of small-pox: you can easily resolve the doubt by noticing that the eruption never becomes pustular, and that it is not preceded by any papular rising of the skin. After a few days the vesicles dry up, and the crusts fall off.

Much more important is the second—SMALL-POX. Let us according to our plan trace out the characteristic differences between this and the other fevers. What are the special peculiarities which distinguish small-pox? First, the premonitory congestive symptoms are apt to be very severe, and they are especially marked by the depression in the nervous system, causing vomiting, and in children often convulsions. These are very common incidents of impending small-pox, and hence when reaction takes place we have proportionally energetic phenomena; intense headache is usually complained of, headache so intense that it is very apt to be mistaken for an indication of inflammation of the membranes of the brain; and excessive pain in the back and limbs also frequently accompanies the reaction.

On the third or fourth day, when the eruption comes out, these symptoms at once yield, and the patient is relieved for the time at least. Congested spots, much as in measles, first appear, and gradually rise in the papular form; and on these papulæ soon form minute vesicles, which in process of time, that is about the end of the first week, "ripen" into pustules. The pustules assume a flattened appearance, being depressed in the centre in consequence of an adhesion to the cutis, on which, when you open them, you often find a small circular piece of lymph about the size of a silver penny. Gradually the pustules dry up, and the scabs fall off. If the inflammation have been severe the cutis may have ulcerated, and then you have the unpleasant result of the so called "pitting" of the skin.

The most important peculiarity of small-pox, one in which it differs from all the other exanthemata, is the occurrence of the "secondary fever." We have seen that as soon as the eruption appears the primary symptoms are relieved, but when the pustules begin to ripen another fever sets in; that is usually about the eighth or tenth day of the eruption. It is in this secondary fever, in part symptomatic of the cutaneous disease, that the patient runs the greatest risk, and is most apt to die.

What next are the most prominent *types* assumed by small-pox? First, the Inflammatory, as may be seen when a strong robust man takes the disease: there are violent cerebral excitement, strong rapid pulse, flushing of the face; you must resort to

moderate depletion, with a free use of all those sedative and antiphlogistic means which we have described as necessary in the inflammatory type of fever. But asthenic symptoms are more common and more dangerous. When the eruption is very copious, the pustules run into each other until almost the whole surface of the body is covered, as if by a universal scald: you can easily suppose the effect produced on the vital powers. In such cases there is swelling of the subcutaneous cellular tissue, especially about the face and neck. There is a flow of saliva from the mouth; the eyelids are swollen so that the eyes are altogether closed up, and the face is wofully deformed; while the swelling all round the throat presses upon the vessels and obstructs the circulation in the brain. Hence a combination, too often fatal, of exhaustion and cerebral congestion, of stupor and asthenia. The eruption does not mature; the confluent pustules continue flat, and properly speaking are not pustules at all, for they contain serum only. Great vital depression follows, the pulse is feeble, and the skin cool, being pale between the irregular patches of the confluent eruption. We ought to be on the watch in severe cases of small-pox so as not to be unprepared for the serious depression which we may thus have to meet, and it must be met with stimulants administered by a liberal hand.

The third type which small-pox is apt to put on is the Septic. This is fortunately rare; but when you have petechiæ on the skin, the abortive pustules

filled with blood, and hemorrhage from any of the mucous membranes, you may look upon the case as a fatal one: I believe that there is no example of recovery under such circumstances. If the patient be a pregnant woman, abortion is sure to happen, is accompanied by uterine hemorrhage, and followed by death.

Inflammation of the Eyes often arises in consequence of the formation of pustules on the conjunctiva; and thus small-pox may produce—and in former days did very frequently produce—a total or partial loss of sight. Another complication is pleurisy; this is a most dangerous, generally a fatal one. Sometimes it is almost latent; and it is only after death that you discover one side of the chest to be full of inflammatory effusion.

The principal *sequelæ* which are apt to follow small-pox are three in number. First, Ophthalmia: not conjunctivitis, as during the disease, but internal inflammation of the eye. I remember the case of a civil engineer, who was recovering from a very mild attack of small-pox, and insisted upon reading a great deal during convalescence. The right eye became affected with iritis, and general deep-seated inflammation; and it was only after leeching and mercurialization that it recovered. The second is the formation of those Abscesses over the body which we have already described; and the third danger against which we ought to be on our guard, is a development of Scrofulous disease previously lurking in the constitution, and of which there is very

apt to be an outbreak at the period of convalescence.

Lastly, it is of some consequence to avoid as much as possible the pitting of the face which is so unpleasant a result of this fever. Try first to keep down the violence of the local skin disease; for pitting is the result of deep-seated cutaneous inflammation, and consequent ulceration. If the patient's strength can bear it, a few leeches may be applied from time to time about the angle of the jaw, as my friend Dr. Staberoh used to advise; as to other local treatment, many are the contrivances which have been proposed to prevent pitting. Some of them, such as covering the face with a mercurial plaster, have deservedly gone out of use. I have tried several of these things; I have employed a layer of gutta percha collodion, painted all over the face, but it does not adhere properly to the skin, it comes off in large flakes, and it does scarce any good. The best plan perhaps is, as soon as the papulæ appear, to touch each with a pointed stick of nitrate of silver, which will go far to prevent suppuration, and immediately after to cover the whole face with pieces of lint soaked in oil—a covering impervious to the air, and yet so soft and pliable as to be easily removed without inconvenience to the patient. I believe this to be the best mode of preventing pitting.

Small-pox differs from all other fevers in this, that it has two ways by which it may be propagated. First, like the others, by an impalpable emanation—contagion as we call it; and secondly, by inocula-

tion, or the actual introduction into the blood of the tangible specific pus, which is formed in the course of the disease. Thus you will observe this malady forms a link uniting the virulent diseases to the fevers. Curiously enough, the fever produced by palpable inoculation is usually milder than that produced by contagion. Advantage was formerly taken of this fact to mitigate the severity of the disease; and you are probably aware that last century it was the practice, and *then* a right and proper practice, to inoculate for the small-pox, in the hope that the fever so induced would be comparatively mild, and at the same time would of course prevent the person from taking small-pox again. But frequently the fever was *not* mild, and people sometimes died from it, as well as from small-pox taken in the usual way; and however mild the fever so induced might be, it was always a focus of fresh contagion; therefore most rightly, since the valuable discovery of vaccination, inoculation has been made a crime. Very curious and interesting are the facts regarding vaccination; but on which we cannot linger long. We have in the first place the matter taken from the eruption on the udder of the cow exercising its well-known power against small-pox in man, by producing in his blood, concomitantly with its trifling vesicle, the protective change which the fever itself would have effected. Then we have the variolous poison producing only this vaccine in the cow. And lastly, we have the strange connection between the latter disease and "the grease" in horses; small-pox being thus

indirectly linked, not to human virulent diseases alone, but to those of the lower animals:—and while we remember that the equine glanders, with all its fearfully characteristic symptoms, may seize on man; it is very interesting to find that the human small-pox may attack the monkey. I shall read to you an extract from the letter of a friend upon this subject. It is as follows:—

“In the year 1841, I was in the province of Veragua, in New Grenada, to the north of the Isthmus of Panamá, and left the town of St. Jago on the western coast for David in Chiriqui, a town in the interior, about sixty or seventy miles to the N.E. (and leeward) of St. Jago.

“The small-pox was raging with great violence in St. Jago, but there was no appearance of it in David. A few days after my arrival there, taking my customary morning's ride in the forest, which teems with animal life, I was struck by observing one or two sick and apparently dying monkeys on the ground under the trees. The next morning I was struck by the same singular appearance (for it is very unusual to find a wild animal sick—they instinctively hide themselves), and by thinking that I perceived several on the trees, moping or moving about in a very languid and sickly manner. I consequently dismounted and carefully examined two, which were on the ground—one dead and the other apparently dying; and after careful examination, no doubt remained on my mind that they were suffering and had died from small-pox. They presented every

evidence of the disease, the pustules were perfectly formed, and in one instance (that of the dying one), the animal was nearly quite blind from the effects. A few days afterwards (I think about four or five days) the first case of small-pox appeared amongst the inhabitants of David, and in the course of a fortnight one half of the population was stricken."

Small-pox then and cow-pox are so far identical that though the latter will not produce the former, it still retains the power, whatever that may be, which hinders one from being a second time affected with variola. In the majority of cases vaccination prevents a person from taking small-pox at all, or if it be taken, lessens its virulence. We have in that case the well-known "modified" disease: yet the *primary* fever is not much modified; that is often as severe as in other cases. But as soon as a few spots, perhaps only a dozen, appear over the body, the symptoms yield as if by magic; and there is never any secondary fever, because there is not eruption enough to produce it.

The protective power of vaccination is, however, exhaustible. After a certain time the system is no longer shielded; but I do not know that we can tell how soon it is necessary to repeat the vaccination. Last year, when small-pox was epidemic here, a multitude of people insisted upon having themselves vaccinated, and it was surprising to see the vaccine disease "take" so often as it did in adults in the most perfect way. If small-pox be already in a house, I question whether it be not too late to vaccinate the

other members of the family for protection, and whether they may not rather thus be rendered more susceptible of the disease. I vaccinated a young man who had on his arm a very good mark from infancy; he took the vaccine disease again as perfectly as possible, —so perfectly that I used some of the lymph for others, —and yet within a fortnight he was ill of small-pox, which existed next door.

With respect to vaccination itself I need not trouble you with long remarks. As in the proper exanthemata, the period of incubation varies much; the typical period at which the vaccine vesicle is perfect is the eighth day; but I have observed it thoroughly formed on the sixth, and in one case I saw its appearance delayed till the fourteenth day after the introduction of the virus. I need not detain you with any observations upon the appearance of this vaccine vesicle, or with any further history of vaccination, which you may read at great length in many books. I would only remark that the smaller the vesicle you have, the better. I believe the person to be as thoroughly protected by a vesicle the tenth of an inch in diameter, as if you covered the arm with inoculated points. It is not the eruption which shelters the patient, it is the previous change which has taken place in the blood; and the less you torment the child the better, a principle which, to judge from the aspect of many arms, some neglect.

LECTURE V.

SCARLET FEVER.

WE now resume the consideration of the Exanthemata, of which the third is SCARLET FEVER. With this it is very important that you should be thoroughly acquainted. You will meet with it constantly;—it is exceedingly dangerous, often very fatal; and moreover it is, in a scientific point of view, one of the most interesting of all the fevers—presenting in itself an epitome of almost every type, and every variety of occurrence which is to be met with in the course of these diseases. As usual we take up first its principal prominent characters. What, then, are the characteristics of Scarlet Fever? First, it is usually ushered in by *vomiting*—sometimes by very obstinate and troublesome vomiting. This is chiefly interesting in respect that in slight cases it is sometimes almost the only noticeable symptom; and the case might be mistaken for an ordinary bilious attack, were it not that others of the family turn out soon to have scarlatina. I have seen several such cases where it was only on thus looking back that we recognized the real nature of a supposed mere “sick

turn." I would therefore recommend you, when a child, without any obvious cause, is seized with bilious vomiting, to consider the possibility of its having this disease; and if there be the least sore throat or feverishness, or the slightest rash upon the skin, to take all due precautions to prevent a spread of the contagion.

The next characteristic of this fever is, as I daresay you are all aware, the *sore throat*. It is very seldom indeed that this is entirely absent, although it is sometimes very slight. It is an inflammation not of the tonsils alone, but of the fauces generally; and, being from a blood-disorder, always exists on both sides, sometimes constituting the most dangerous of all the symptoms. The third peculiarity is the state of the *tongue*. In scarlet as in other fevers, the tongue, in truth, may put on all variety of appearances—nay sometimes may be perfectly natural throughout the disease; but the typical tongue of scarlet fever is covered with a white creamy fur, the tip however being of a vivid red, through development of the papillæ. By and by the fur falls off, and the whole dorsum of the organ is then left clean, red, raw, but still strawberry-looking.

The *eruption* is the fourth characteristic; it appears commonly on the second day, but in fact there is a great variety, both in the date of its breaking out and in its aspect. Typically it is of a scarlet colour, and is stippled in minute spots all over the affected parts of the skin, which are usually more or less rough to the touch—the parts on which the rash is

principally found being the arms, the neck, the thighs, and the back; and it is generally accompanied by considerable irritation. It varies much, as I have said; sometimes remaining out for but a few hours, at others persisting for days. Sometimes it is a pink blush rather than a scarlet efflorescence; and it may be most fugitive and irregular, presenting here and there large patches mixed with points of red. Sometimes the rash is absent altogether, and this chiefly in the most serious cases. The eruption is always followed by desquamation of the cuticle, and there is no fever in which this is more conspicuous; sometimes large masses of epidermis fall off from the hands and feet. Usually the desquamation is in proportion to the intensity of the previous rash; although, as Graves has pointed out, cases do occur in which the latter has been so slight as not to have been noticed at all, and yet the desquamation has been complete and characteristic. During this process the skin is very dry and harsh—a condition which we shall by and by see to be intimately connected with some of the most troublesome phenomena occurring in the sequel.

The fifth characteristic of the complaint is the tendency to affection of the *kidneys*—more or less congestion of which occurs, I believe, in every case of scarlet fever, although, like the sore throat, it is sometimes so slight as to give rise to no prominent symptom. The kidneys are thus always in a dangerous state—always in a condition in which a slight cause will suffice to produce bad effects.

Such are the five characteristics of our fever. Now what are the most prominent Types which it assumes? In the first place there is the *mild type*. In ordinary cases it is not necessary to speak much of the mild type of any fever, but in Scarlatina we ought to watch it well for this reason, that the disease, though sometimes so very slight that it may be hardly noticed as a disease at all, is nevertheless very apt to be followed by troublesome, nay even dangerous sequelæ. It is commonly said that the mildest cases of Scarlatina are those most frequently followed by dropsy and other consequences: I am not sure of this—perhaps it may be so; the reason however in all probability being that less care is subsequently taken of the mild than of the severe cases. There may be a mere sore throat, or a mere attack of bilious vomiting, with slight feverishness. There may be but a little indistinct efflorescence about the shoulders and the neck; and the symptoms may be all so mild that the child, unless compelled, will not keep its bed, and that the parents, if unwarned of the danger, would permit it, perhaps, to run out of doors next day; and yet there is the danger which I have mentioned.

The next type which it is necessary to mention is the *congestive toxic type*. Its most dangerous and fatal forms are more remarkable in this than in any other of the fevers with which we in this country are familiar. In this respect Scarlatina approaches, in suddenness of danger, to plague and the worst forms of yellow fever. I was told by a friend that on one occasion he was leaving the house in which a child

had died of Scarlatina, accompanying its funeral, when he was called back to see a brother or sister who had just then been taken ill. He prescribed for it, set out, and on his return from the funeral found the child moribund, so very rapid was the fatal progress. I have myself seen death take place in six hours from the commencement of the disease; the child in fact dying poisoned. In other cases the symptoms which occur may be cerebral—may be rather congestive than toxic. The child falls into stupor; his pupils become contracted, his face darkly flushed; and he gradually sinks without recovering from this cerebral congestion. In many cases symptoms of this nature, evidently scarlatinous, are unaccompanied by any rash; but the eruption may in other cases come brightly out though we have no reaction. I remember one very marked example in the person of a lady with whom the preliminary vomiting never ceased; it continued unceasingly for a couple of days—in fact till she died exhausted in spite of everything that could be devised to check it; and yet the rash was brilliantly out over the whole surface of the body.

The third type which the disease familiarly assumes is the *inflammatory*, constituting, as authors have it, “Scarlatina anginosa,” so called from the violent inflammation of the throat which accompanies it, while high fever and delirium generally mark its course—symptoms these which might readily lead us to adopt depletory treatment; to leech the throat freely; to give tartar emetic, or other powerful sedatives. Of

this however I would warn you to beware. The inflammatory symptoms will subside under gentler measures; and by avoiding undue depletion, you also avoid the danger of the asthenia into which the patient would otherwise be very apt to lapse. If the activity of the symptoms lead you to leech at all, let it be done early, and to a very moderate extent; but rather trust to the soothing effect of warm poultices round the throat, than weaken the child by needless loss of blood.

The fourth aspect of Scarlet Fever is what has been called *Angina maligna*, our "septic type." You now I trust know well enough the general phenomena of this type of fever; I need not therefore detain you by going over them again to-day. But here these symptoms are indeed very markedly developed. We have great debility, and we have a tendency to gangrenous inflammation of the throat. The tonsils slough, and the fauces are covered with foul ulcerations. There is at the same time swelling all around; the throat, the neck, the cheek, the nostrils, are swollen; respiration and the cerebral circulation are more or less impeded, and the child lies in a partial stupor. There continually flows from the nose, and sometimes from the mouth, a sanious discharge, which excoriates the lips and cheeks, while the same secretion passes downwards, sometimes producing diarrhoea, nay even excoriation of the anus; and the system is further poisoned by reabsorbing it. This adds to the general depression and the fearful asthenic symptoms which, for the most

part, carry off the patient ; for the treatment of these cases too often fails. Stimulants of different kinds—tonics and antiseptics—must be given. These,—particularly the stimulants—brandy, carbonate of ammonia, liquor cinchonæ, chlorinated soda, creasote—are the best means of combating such dangerous symptoms ; and some set great store by the *tinctura muriatis ferri*, which cannot at least do harm. You might be inclined to employ gargles, but you will find that the child cannot gargle ; and much meddling with the throat is bad, it is so swollen and ulcerated. It is much better to use, at longer intervals, a strong solution of nitrate of silver ; or as Wood recommends, a paste of cayenne pepper, to be painted on the dark-red, congested, sloughy throat ; but as I have said, too often it is all in vain.

Scarlet Fever is very severe in certain constitutions. We find that in the same family a number of children are often carried off by it at once, while in other families the disease is always mild ; yet in some you will find the most severe and the mildest cases existing together. But there is a condition in which the disease is almost invariably fatal ; that is the puerperal state. No precaution then ought to be neglected—no precaution ought to be thought excessive—which tends to prevent a woman from receiving the poison of *Scarlatina* while pregnant or recently delivered. If she be pregnant when she takes the fever, she will almost certainly abort, and die after the abortion. If she be recently delivered, the disease will be of the most malignant type, and almost always fatal.

Scarlatina, more than any other fever, is apt to be accompanied or followed by *complications and sequelæ*. Of others you are generally pretty confident that you have done with them when the fever is over; but till after some considerable time has elapsed, you can never make sure that you have done with Scarlatina. The great fact to be kept in mind, in considering the results of this disease, is the *renal derangement* which I have already mentioned—that there is, as part and parcel of the fever, more or less congestion of the kidneys, and hence a tendency to disorder of the blood, from their doing their work imperfectly. There are various occurrences which are apt to take place, sometimes spontaneously, without the application of any visible exciting cause—every care having been taken most sedulously to watch and protect the patient. At other times, and more frequently, they are evidently the consequence of imprudence, and more particularly of exposure to cold; so that it is of great importance that we earnestly warn the friends against the danger of allowing a child, convalescing from Scarlet Fever, to go out of doors. Even in summer this precaution ought to be adopted; much more in winter. It is sometimes difficult to have it enforced, especially when the disease has been very slight, and the parents cannot be convinced that there is such danger. But you ought nevertheless to neglect no means to prevent your little patients from being exposed in any way to the influence of cold. They are not safe until the desquamation of the skin shall have been thoroughly accomplished—till all the

old cuticle has been removed, and till the skin have resumed its natural softness ; and when this has taken place you may conclude that the secreting tubules of the kidneys have also gone through their part in the desquamation. Until this has been completely performed the kidneys are still in danger—especially if the patient be exposed to cold—of having their secretion suspended, their circulation interrupted, and congestion, nay even inflammation, so induced. To avoid these dangers, the first point is to insist upon the patient's being kept in bed until he is thoroughly convalescent ; and subsequently upon his being confined to his room till the desquamation is completely accomplished. I am in the habit, to further this process, of causing the whole surface of the body to be well rubbed once or twice a-day with common olive oil. This soothes the irritation of the skin, renders it much more pliable, and greatly facilitates the process of desquamation ; and as soon as the child has strength for it, I order that it shall have every second night a warm bath, in which it is to be well rubbed over with oatmeal or bran.

The sequelæ of Scarlet Fever are various. You will not unfrequently find that the patient, having stood at an open door or window, has next day considerable *glandular swelling* on both sides of the neck. The best local treatment is, I think, simply to envelope the neck in carded cotton soaked in oil. Thus you exclude thoroughly the cold ; and gradually, as the general strength improves, the swelling of the neck subsides. In some cases there is however

a very different kind of swelling. This takes place rather earlier in the disease than that which I have just mentioned—that is, at the period at which the child ought to convalesce, but does not. It is a swelling of the whole tissue about the neck and throat—sometimes descending towards the shoulders almost like a tippet; it also often ends in suppuration. Fortunately this is a rare sequela, for most of the cases die.

The next thing to be noticed is rheumatism—not articular rheumatism, but rheumatic pains, often very severe. The child cries all day about the pain in its arms and legs, and yet for the most part you see but little when you come to examine them. It is a case in fact, of *neuralgic rheumatism*, and distinctly connected with the poisoned condition of the blood; and I think the best treatment is that directed with the view of eliminating the morbid matter by promoting the secretions, and that small doses of colchicum with the iodide of potassium often do much good.

Inflammation of the *ear* is a very frequent and most serious consequence of Scarlatina. There are cases indeed in which such inflammation penetrates deeply towards the brain, and so causes death, it may be many years afterwards, in a way long ago explained by my friend Dr. Bruce of Liverpool—caries of the petrous portion of the temporal bone producing phlebitis of the lateral sinus, and fatal abscess of the brain. But in the majority of cases the danger is simply that of loss of hearing, from

disorganization of the middle ear; and when you reflect upon the great importance of the sense that is in jeopardy, you easily understand that this is a very serious matter. A great number of the cases of deafness with which we meet can be traced to Scarlatina. It is moreover not very easily prevented. If the child be very ill when the affection of the ear begins, the care of the physician and attendants is absorbed by the more serious symptoms immediately threatening life, and it is only at the time of convalescence that they come to think of the ear at all. Besides, even if we do observe, it is questionable whether we could then do very much to arrest it, for the state of the system is such that the local affection is not in the meantime very amenable to treatment. However, there is no doubt as to what the plan of treatment ought to be. Watch then the ears carefully in Scarlatina. Any complaint of pain ought at once to be attended to; if the child have strength to bear it, apply a leech or two, and subsequently warm poultices; and you will find, I think, as soon as the acute symptoms are subdued, that repeated and persevering blistering is the best way of treating the disease. No stimulating application should be permitted; the ear ought to be carefully and frequently syringed with warm water, and subsequently with a weak solution of the acetate of lead; and if ultimately there be copious discharge, a tannin injection may be used, or the nitrate of silver in solution be dropped into the ear.

The fourth, the most interesting, and as far as

immediate effects are concerned, the most dangerous sequela of scarlet fever, is its characteristic, almost proverbial *dropsy*, which occurs at the period of convalescence, or even after apparent complete recovery. Generally speaking, this can be traced to exposure to cold; but you will find also many cases in which a child becomes dropsical while still confined to bed, and exposed to no external exciting cause whatever. The face becomes puffy, and the backs of the hands and the feet pit slightly. Moreover there is a pallor of the countenance which is characteristic, pointing not only at the infiltration of serum into the subcutaneous tissue, but also at the anæmia which belongs to scarlet fever, of which disease we may say, as we said of rheumatism, that it has a marked tendency to spoil the blood, diminishing the quantity of its red corpuscles; an effect which other fevers, such as typhus, do not produce—and this is one reason for not using any unduly exhausting measures in the previous treatment. Sometimes we have general anasarca, and serous effusion into the cavities of the chest and abdomen, nay even within the head, producing most serious symptoms. The functions of the brain, the play of the lungs and heart are interfered with, and the child sometimes dies thus in stupor, which is not merely the mechanical result of the effusion of serum in the head, but also arises from the poisoning of the blood by the urea, which the kidneys are not eliminating. What is the pathology of this affection? It is its connection with the desquamation of the skin and kidneys.

The skin, dry, harsh, and inactive, does not excrete as it ought to do; and thus any application of cold to the surface of the body, checking the little action which remains, affects still further the already congested kidneys. The secretion of these glands is already interfered with by their own desquamation, and the consequence of the interruption to the elimination of water by the skin and by the kidneys—the two great emunctories—is this specific dropsy. The kidneys, more and more congested, throw off along with the urine their desquamating epithelium in tubular casts. The urine, very scanty, is loaded also with blood, bursting from the congested capillaries. By and by, when there is more water secreted and less blood effused, you find it of a smoky colour, like moss-water, an appearance which the microscope tells us is owing to the presence of a small quantity of somewhat altered blood. Further, the urine is albuminous, sometimes so much so as to become almost solid on being boiled. Now if the patient die, and we have an opportunity of examining the kidneys, we find that in the early stages of the affection they are decidedly congested, if not inflamed; but in the more advanced state the kidney becomes pale in the cortical part, in consequence of the accumulation in the tubes of cast-off epithelium. The state of the urine evidently varies according to that of the kidney. In the early stage, when the kidney is much congested, the urine is charged with lithates, bloody and highly albuminous. Afterwards it is paler, but still contains albumen. Make it therefore

a rule in every case of scarlet fever, to examine this secretion daily during the period of convalescence. If it appear to you to have in the least degree a smoky brownish colour, then test it for albumen, and if you find any, at once take measures for arresting the disease. It is of more importance that you should examine the urine, than that you should feel the pulse of a convalescent from scarlet fever.

But practically, what are we now to do? One important object is to restore the action of the skin; and I believe if you have, from the period of the subsidence of the eruption, had recourse to the precautions which I have already described, you will have fewer cases of scarlatinous dropsy than otherwise. Let the greatest care be taken not to expose the child in any way to cold; but at the same time keep up his strength; remember the anæmia, remember the spoiled blood. Nourish the patient with as much food as his digestive organs can properly make use of, and if necessary give a moderate allowance of wine or brandy. But if the dropsy have actually appeared—if there be any albuminous urine—I would at once recommend you to apply a few leeches over the region of the kidneys, whether there be pain in the loins or not; or if the child be old enough to bear that mode of treatment, you may have him cupped. Very remarkable is often the result of this proceeding. In the course of a few hours after the kidneys have thus been relieved of congestion, the urine becomes more copious and less albuminous. If the symptoms be so slight that you think it unneces-

sary to take blood, I recommend you to apply continuously hot poultices over the lumbar region; this will greatly relieve the renal congestion. The patient dropsical from scarlet fever ought also to be treated with diaphoretic doses of antimony; and moderately, not severely purged; the hydragogues, particularly the compound powder of jalap, are most suitable for this purpose. There is no doubt that the affection of the kidney is of an inflammatory nature, and apt to terminate in interstitial effusion into the tissue of the organ. I advise you therefore to employ mercury, being convinced by experience of its utility. The best preparation for the purpose is the blue pill, given two or three times a day in combination with squill and digitalis, until the urine resume its natural appearance. I do not know that it is necessary to push it so as to affect the mouth; but I think the mercury assists in the production by the diuretics of their specific action upon the kidney; for I am sure that these non-stimulating diuretics are here of real advantage, and that under their influence the tubules more readily throw off the accumulating epithelium, just as the warm bath and friction help to clear the skin. As soon as the inflammatory symptoms appear to have been subdued—in what we may call the second stage of the renal affection, when the urine is more copious and clearer, though still smoky and somewhat albuminous—we must recall to mind the anæmia of the patient, the necessity for feeding him, for keeping up his strength, and so diminishing the tendency to impoverishment

of the blood; and very soon you will find that Iron will stand you in good stead. For this purpose I think that the muriated tincture is the best preparation, being a diuretic in virtue of its tonic action on the now passively congested vessels. I think you will find that this has now become the best plan of treatment; and ultimately, as in many other similar affections, that the iodide of potassium in small doses is very useful. This is also a diuretic, and may be given with the syrup of the iodide of iron, if you wish to continue the chalybeate. It ought to be mentioned that according to the opinion of Dr. Graves, the scarlatinous poison sometimes settles at once on the kidneys without previously producing its specific fever. I am inclined to suspect that in such cases the fever had really existed, but in the very slight form I formerly described to you, and that it had been thus overlooked; but at all events we have abundant proof that the affection of the kidney is not a mere accident, but is part and parcel of the normal working of the scarlatinous poison.

LECTURE VI.

MEASLES.—THE IMPERFECT EXANTHEMATA; TYPHUS.

THE last of the true Exanthemata with which we have to deal is MEASLES. This is proverbially an infantile disease, but much less destructive of life than scarlatina; and it attacks on an average younger children than that fever does; few escape it, and it is very seldom repeated, though now and then one hears of a second attack. The premonitory symptoms are usually more prolonged than in other fevers; and during the period of incubation there are cough and sneezing, and general malaise, after which gradually appear the characteristic symptoms.

First, there is the eruption, which does not come out until the fourth or fifth day. Instead of being formed of very minute points like that of scarlet fever, it consists of small spots or blotches, some of them running into crescentic patches; nor is it scarlet, but of a pinkish red. For the most part the eruption appears first on the face, and next on the back, where it is usually most copious; and the fever does not lessen on the outbreak of the rash, which lasts for

four or five days, and is followed by slight desquamation. The second peculiarity is the catarrh; indicated by constant sneezing and coughing, and in many cases passing into bronchitis.

Measles rarely assumes the congestive character, its most common type being the inflammatory combined with the characteristic pulmonary affection, and this constitutes the danger which in severe cases we have to combat. The occurrence of bronchitis or of pneumonia is to be detected by the physical signs of these diseases respectively; thus if there be dulness to percussion in any part of the chest, we are quite sure that we have to deal with more than mere catarrh. But while our detection of these diseases implies antiphlogistic treatment and the use of antimony, we must remember that we are engaged, not with ordinary pulmonary inflammation, but with pulmonary inflammation occurring in the course of a fever, and must exercise all due prudence lest we deplete too much or exhaust by sedative treatment.

Important *sequelæ* follow measles. The first which I shall mention is just the sequence of the characteristic pulmonary tendency of the fever,—bronchitis;—and for obviating this you cannot take too much care to avoid exposing your patient to cold during convalescence. The bronchitis usually affects both lungs, and when it lapses into pneumonia this is of the variety called broncho-pneumonia, and in strumous patients may end in the development of miliary tubercles throughout the lungs. You will meet with cases in which you would be disposed to

lay it down as certain that this unfortunate result has taken place; in which, from the increasing cough, the emaciation, the dry and harsh skin,—from the debility of the patient, from dulness over the back of the chest, from the rapid pulse,—there will seem to you no doubt but that the child is going to die, and that after death you shall find both lungs full of tubercles. But I have seen more than one case of perfect recovery from symptoms such as these, the diagnosis having been happily erroneous. The treatment which I adopted—I must confess without much hope—was the exhibition of tonics, as quinine; keeping up the patient's strength with food and wine, and at the same time introducing mercury into the system by friction over the affected part of the chest:—if you mix a little croton oil with the blue ointment, the latter will be absorbed more rapidly:—cod-liver oil and iron completed the cure.

The next danger which is apt to follow measles is the occurrence of asthenic croup, usually preceded by diphtheritic inflammation of the fauces, which gradually passes down to the larynx; a very dangerous form of disease, and to be combated not by debilitating means, but by keeping up the patient's strength with beef tea and brandy, while you use counter-irritation over the throat, and “swab” the fauces with nitrate of silver.

Diarrhoea is the third sequel which I shall mention. At convalescence there is usually a tendency to looseness of the bowels, which if moderate ought not to be counteracted, as it is commonly rather advan-

tageous. If however it run into actual diarrhœa, the consequences may be very bad; hence do not overpurge a child who is recovering from measles. Lastly, there is a strong tendency to catarrhal ophthalmia, especially if the constitution be strumous. During measles therefore keep the room dark, prevent the patient from reading or using his eyes, and let them be closely watched, so that any inflammatory attack may be treated without delay.

Such are scarlet fever and measles, two most distinct diseases; but there is a fever compact of both;—the true “Rubeola,” or “Rötheln” of the Germans. You have here a copious red eruption over the body, something like that of measles, but in larger blotches or patches, with a mixture in it of the efflorescence of scarlatina. You have the sore throat and somewhat of the tongue of scarlet fever; you have also in a measure the catarrh of measles; and this is about as much as can be said to practical effect concerning the disease, implying also the necessary treatment as I have already detailed it to you; but the important point is that we ought to look on it rather as an irregular scarlatina than as a peculiar measles, for you have the subsequent dangers of scarlatina to deal with, and not merely the subsequent dangers of measles:—you are aware that the former are by far the greater; and therefore it is a matter of prudence to think of the case as of scarlet fever, and to take all necessary precautions against consecutive dropsy, and the bad health which might thereon follow.

The next class of fevers I call the IMPERFECT EXANTHEMATA—three fevers which, as we have seen, are Typhus, Enteric, and Gastric fevers. They are alike in having an eruption, which however is by no means so constant in its occurrence, nor so conspicuous in its appearance, as the eruptions of the four Exanthemata proper—an eruption, which in some epidemics is very marked, in others for the most part wanting. All the three I believe to be contagious. Each may occur sporadically, or as an epidemic; and sometimes, as I shall prove to you, we find two of them combined. We shall in the first place however take these diseases one by one.

TYPHUS is certainly an exanthematous fever. The eruption is sometimes absent, and frequently very slight; but it is present in so many cases, and often so conspicuously present, that there can be no doubt whatever of its being a characteristic of the malady, which we must look upon as a specific contagious fever, distinct from any other, and as a rule occurring but once in life; I never knew any one take it a second time.

In speaking of “typhus,” you will remember that we are using the word as indicative of no particular *type* or *character* of fever. We have three terms which it is necessary for you distinctly to understand. The first, “Typhus,” is a substantive, and expresses a fever—which may be of any type—produced by a particular specific contagion; the second, “typhous,” is an adjective which ought to be expelled altogether from the language, and the words “of typhus” used

instead ; the third, "typhoid," is, as I have already tried to make you understand, an adjective expressing a particular character which may come to belong to fever induced by any poison—the *typhoid type*. The term "typhoid fever" is by some used to denote what we shall understand by "enteric fever;" but as you value a distinct conception of what we are to be about, I beg you to forego this use of it entirely.

Typhus is a disease of great importance in this country and in Ireland ; in England it seems to be less common. It occurs now and then as an epidemic of excessive violence, but varies exceedingly in intensity. It is much more a pure fever than any of those we have hitherto considered—there being no constant complication like the sore throat of scarlatina or the bronchitis of measles, the hepatic disease of yellow fever or the carbuncles of plague. It may, as I am convinced by repeated observation, kill without your being able to find in the dead body any change to which you can point and say, "That was the cause of death."

Let us then study the distinguishing characteristics of typhus. The invasion is usually sudden, as compared with that of measles or enteric fever. Suddenly you have a shivering, and a feeling of great prostration and languor follows. The tongue for the most part soon becomes dry and brown, and the bowels are habitually constipated. These are the ordinary peculiarities of typhus ; but especially there is something about the countenance which, to an eye accustomed to see the disease, is very charac-

teristic. There is a dull and stupid expression, and the eye is often suffused and injected. There is also a wandering delirium, from which at times the patient can be roused to answer questions in a half distinct way, and into which he again immediately relapses, and speaks mutteringly now one thing and now another. There is usually a flush on the face, and a dull suffusion of the skin, which has a dirty, muddy look. We find in almost every case a slight bronchitic complication: I examined at one time a great number of patients labouring under typhus, for the purpose of ascertaining this, and I very rarely found that bronchitic *râles* were absent from the chest. The *eruption* occurs in roundish spots, varying from 1-10th to 1-4th of an inch in diameter, scattered over the body, but rarely on the hands and feet, and very seldom, if ever, upon the face: in this it differs remarkably from that of measles, which is besides of a brighter, clearer red. The rash in typhus comes out generally on the fifth day, though I have seen it as early as the third, and on the other hand I have known its appearance delayed till the eighth day. By the fifteenth or sixteenth day of typhus the eruption has disappeared, having gradually become paler, as a mere stain in the skin: in favourable cases convalescence has been by this time established.

The *urine* very seldom offers anything like a cloud at the period of convalescence—much more frequently in the early days, according to my observation. It has, during the fever, a regular progression in point

of density, acidity, and the quantity of uric acid, these being all at first great, and gradually lessening to a minimum, which in the case of the uric acid is nothing; after which they rise gradually as they fell.

This fever presents all degrees of severity. If you announce to the patient's friends that he has typhus, they often take it as a death-warrant, the popular idea being that *typhus* is always a *typhoid* fever; so you must be careful to warn them that you do not thereby mean that it is a dangerous case, but merely that he has a contagious fever of a particular character. Typhus is most severe in those advanced in life: I took great pains during one bad epidemic to ascertain this, by noting down the ages of the patients admitted to the Fever Hospital during more than a year. I found that the mortality between ten and fifteen years of age was one in twenty-six; between twenty-five and thirty it was one in eight; between forty and forty-five one in four; between fifty-five and sixty it was one in three. Thus then age is a most important element in the prognosis of typhus; and there can moreover be no doubt, to judge at least from my own observation, that the mortality is greatest among males.

The *mild type* hardly requires notice; and need not alarm you, except that there is danger of contagion. You must therefore take precautions to separate your patient from others to whom he may give the disease. Of the contagiousness of typhus I have no doubt whatever. When I was clerk in the Infirmary, there was not a nurse, not a clerk, who did not take typhus

after being in contact with it for a certain time, and I believe, as I told you before, that it is most contagious during convalescence. Yet its contagion is not so active as that of the regular exanthemata. While I have seen scarlet fever and measles propagated in a family in spite of all precautions, I have never in any house where satisfactory ventilation could be resorted to, seen typhus spread.

I never saw it put on the congestive type; the inflammatory type is rare, though I have seen it once or twice; and the nervous type is also rather unusual. The most dangerous form which this fever assumes is a complication of the typhoid and asthenic types, which, I think, is often also accompanied by cerebral and pulmonary complications. I need not go over these again,—you know them now, and can easily understand how serious a case it comes to be when they are all combined. In no other fever of this country is asthenia so frequent: in no other is that softening of the heart which is so closely connected with this sinking more observable.

The congestive cerebral complication is very common in this disease. It sometimes comes on without being preceded by any excitement: the patient falls at once into stupor, and ultimately into deep coma; but for the most part you have a preliminary stage of delirium, sometimes most violent, amounting to “delirium ferox,” and requiring the use of the strait waistcoat. When the stupor comes on suddenly, we usually find mere congestion, but in two cases which occurred to me there was acute softening of the brain;

one of these I quote in abstract from my inaugural essay on Typhus:—

“Elizabeth Riddell, aged 15. Became suddenly stupid and very restless on the twelfth day of typhus, having previously complained of headache and oppression; stare vacant; death in a few hours. *Inspection*, after twenty-six hours. Upper surface of arachnoid and convolutions rosy; much effusion in the pia mater, though but slight congestion. The cerebral substance was very soft; the cortical of a pink colour; the ventricles contained bloody serum; purpura spots on the pericardium.”

In the present days of fashionable proscription of the lancet I wish to call your attention to the result of such another case, which was saved by bleeding.

“R. B., aged 15. On the twelfth day of eruptive typhus was taking four or five ounces of wine daily, for his pulse was one hundred and twenty, soft and fluttering. At four A.M. on the thirteenth he fell suddenly into deep stupor. His pulse being full and pretty strong I ventured to bleed him, as it was plain that if let alone he would be sure to die: I drew eight ounces—the boy immediately became sensible, and recovered without a bad symptom.”

The *typhoid type* is familiar in this fever; in fact it was from its frequent occurrence in typhus that it got the name of “typhoid.” The dusky skin, the perspiration, the contracted pupil, the subsultus, the ultimate coldness of the surface—all these, as we have seen, are indicative of the typhoid (asthenic) type.

Sometimes the *septic type* in an incipient form can

be detected by the eruption putting on a petechial character. If you find that the spots do not disappear on pressure, it is a bad indication of the patient's state, and shows that the blood is becoming disorganized; and if after death you cut through the skin, you will see a slight ecchymosis in its tissue. Sometimes the state is more distinctly purpuric, and there are vibices over the limbs, and hæmorrhage from various parts; but this is rare. Once I saw a patient die from loss of blood from the bowels, and hæmorrhage into the ventricles of the brain. I quote the summary from my essay:—

“Angus Clarke, aged 27. On the fifteenth day of fever, after complaining of headache, had hæmorrhage from nose and mouth, and to the extent of twelve ounces from bowels; and on the same day purpura spots and ecchymoses appeared over whole body; next day the headache had diminished, and the hæmorrhages increased, but there was no stupor; he suddenly died that forenoon. *Inspection*, after twenty-six hours. No effusion in the pia mater but of blood, which formed spots all over the surface of brain; lateral ventricles contained at least three ounces of bloody coagula; the central parts of the brain softened and partially broken down; ecchymoses on the pericardium, the pleura, the lining membrane of the great veins and of the bladder; mucous surfaces of stomach and large intestine almost black, from blood effused under it in spots and patches.”

The morbid state of the blood is shown by the condition of the arteries. On opening the heart you

will often find the lining membrane of the great vessels coloured of a deep dark red : some considered this a sign of inflammation, but Andral brought forward satisfactory evidence that it is but a stain which takes place after death.

Pulmonary congestion is a frequent and dangerous occurrence in typhus. I took particular pains in fifty-four fatal cases—taken without selection, as they occurred successively in the hospital—to examine after death the state of the lungs; and of these fifty-four, I found thirty-three in which there was very considerable congestion of the back part of the lungs. But it was not actual inflammation; in only one-seventh of the cases had typhoid pneumonia occurred. Yet even pulmonary congestion is always a serious matter, and you can easily comprehend how great a part it plays in bringing about the fatal issue.

What are the abdominal symptoms of typhus? In pure typhus I *know* that ulceration of the bowels does not occur; for I have notes of many fatal cases in which the intestine was altogether sound. But the bowels are by no means always healthy; there is often a highly congested state of the intestinal mucous membrane—the mesenteric veins are turgid with blood, the mucous membrane purple with congestion. You can frequently, under the microscope, see the little central vessels of the villi full of blood; and may sometimes scrape off the inflamed and softened mucous membrane with the back of the scalpel; but all these without ulceration.

This congestion is concerned in producing a very

dangerous symptom—meteorism. I have seen many cases of typhus in which extreme distension of the bowels was so produced; hence great difficulty of respiration, and hence again increased stupor. You will find that in these cases oil of turpentine often does good in doses of half a drachm three times a day. It appears to have a specific effect in diminishing the congestion. In one instance I saw a man's life saved by the introduction of the rectum tube, when the extreme distension was threatening to produce asphyxia: immediately there was a great rush of flatus from the colon, and the patient, who seemed at the point of death, recovered happily, and is now a vigorous and useful member of society.

Hiccup is fortunately not a common, for it is almost always a fatal symptom in typhus. It is caused, sometimes by great congestion of the brain—in two of my cases there was effusion of blood under the arachnoid;—sometimes by inflammation of the peritoneum in cases complicated with intestinal ulceration; and once I found the whole mucous membrane of the stomach soft, of a dark red, and raised by bloody submucous effusion from the muscular coat.

The spleen in typhus is apt to be more or less congested, enlarged, and softened—sometimes reduced to a pulp. But if a patient have gone through the fever and died of some sequela, it is on the contrary usually smaller and firmer than natural. Many *sequelæ* follow typhus. Some of these, such as erysipelas, parotitis, œdema of the glottis, pyæmic arthritis, I have already described to you when

speaking of fever in general; others, as pneumonia, peritonitis, pleurisy, gangrene of various external parts, do not demand from us at present more than this brief enumeration. I conclude our lecture to-day, and with it our consideration of pure Typhus, by reading from the essay of which I have already spoken, the following notes of a case than which I never saw one end more destructively:—

“John Reilly, aged 27. On the eleventh day of a smart attack of fever, had swelling over right angle of jaw, which gradually increased; suppuration followed, with gangrene of the temporal muscle and aponeurosis. Rapid sinking preceded death on the twenty-fourth day. *Inspection*, after forty hours. Temporal muscle perfectly gangrenous, the abscess opening into the mouth; parotid healthy; softening of the corpus callosum and surrounding parts; a spot of brain, about the size of a half-crown piece, on the lower surface of right anterior lobe, of a dark-green colour, which penetrated quite through the cortical portion, stopping abruptly on the surface of the fibrous part of brain; sphenoidal sinuses full of pus.”

LECTURE VII.

ENTERIC FEVER.

I HAVE already stated to you my opinion that ENTERIC FEVER is distinct from every other; and we are now as usual to take up the principal characteristics of the disease. It has been studied especially in France, where it is more frequent by far than here; and in the works of Andral, Louis, and Cruveilhier you will find it minutely and accurately described by the name of "Fièvre typhoïde," translated into *Typhoid fever*—a designation which I have already recommended that for clearness' sake you should dismiss from your terminology, lest you should confound this disease with the *Typhoid type* of fevers.

Like other fevers, that of which I am now to speak occurs both sporadically and as an epidemic; and I believe it to be contagious, though less strongly so than typhus. Its great characteristic is the tendency to produce disease of the follicles of the intestinal mucous membrane, from which circumstance it was called "follicular enteritis" by those who thought fever the mere result of some local malady. It differs from typhus in this—that it attacks younger people,

mostly from twenty to thirty, but very rarely those above fifty; whereas, as we saw yesterday, typhus may attack those of almost any age. Again, its mode of invasion is different. That of typhus is for the most part sudden: begins with a rigor, and prostration supervenes at once. The fever of which we now speak begins gradually and insidiously; so much so that the patient may for some days persuade himself that there is nothing the matter with him. In the last instance I saw, the gentleman who was the subject of the disease, although I was in the house day after day seeing another member of the family, made no complaint. He considered that he had got only a cold, and was a little weak; and it was not till he had been four or five days ill that he took my advice; the disease went on to a fatal issue by ulceration of the bowels. Again, the whole aspect of a person labouring under enteric fever is distinct from that of one in typhus. There is not the stupid, oppressed look, which I endeavoured to describe to you yesterday as belonging to that disease: there is rather languor, prostration, and indifference to everything; or if there be delirium, it is by no means constant; it is of a milder kind; there is more wandering than confusion. The countenance too is different: there is a partial flushing of the cheeks, with pallor of the other parts of the face, which you never see, I think, in typhus; and the pulse is variable, corresponding with the variable state of the nervous system. The eruption likewise is peculiar: it appears, not on the fifth day as in typhus, but from

the seventh to the twelfth—is not diffused over the whole body, but confined to the epigastrium and abdomen—is not copious, but consists perhaps of but from six to twenty spots. These are slightly raised, and of a pale rose colour. The same spots remain out for but a few days, and there is a succession of them so as to keep up the eruption for perhaps a fortnight, or throughout almost the whole duration of the acute symptoms of the fever. Sometimes, as in other eruptive fevers—perhaps more than in any other—the rash is absent. I have seen a patient die from the characteristic disease of the bowels, as determined by inspection after death, without one spot having made its appearance. The duration of the malady is greater than that of typhus. A fortnight, as I told you, I consider the normal length of the latter fever; the normal duration of enteric fever is probably about three weeks, but it may be indefinitely prolonged by the intestinal disease.

This local affection is not always by any means in proportion to the degree of “fever” present. I have seen the affection of the bowels so severe as to go on to produce fatal perforation, and yet the fever at no time arose to any height; the latter may vary, therefore, independently of the local lesion. Of this the symptoms are, in the first place, *diarrhœa*. Diarrhœa, more or less, is I believe almost always present at one period or other of enteric fever, although it may cease for a considerable time, and yet the bowel affection be going on. I have more than once seen the patient die of peritonitis from perforation,

and yet for three or four days previously the bowels had been rather constipated: the non-existence therefore of diarrhoea is no proof of the absence of the specific ulceration of the mucous membrane. But there is by no means always ulceration of the bowels; this fever like others has its mild type; but it is still the true enteric fever, although the symptoms may be only slight diarrhoea, occasional abdominal uneasiness, and some flatulent distension of the bowels; these however, particularly if accompanied by the appearance of a few of the characteristic rose-coloured spots on the abdomen, indicate a disease which you must expect to last about three weeks.

The evacuations are very various in appearance. The stools are not bilious—nay are frequently deficient in bile, of a pale yellow, and sometimes mixed with blood. I have seen them look as if chopped carrots had been mixed up with them; but more generally I think you will find them of a pale dirty yellowish colour, like pease soup. There is always present more or less *tympanitic distension* of the bowels; and when you press your hand on the abdomen, particularly in the iliac region, you feel what the French call “gargouillement,” from the rumbling of flatus; and sometimes this distension is very great.

The *pain* is also various in degree, and sometimes there is none;—I have seen a case go on to fatal perforation without any complaint being made. Sometimes again the pain is severe, but is not constant; and it may be only by pressure that you can elicit it.

The tongue is quite different from that of typhus; yet it too varies very much. Sometimes in fact it is almost natural; sometimes it is furred; sometimes chopped, red, and raw; and I have seen it present no morbid appearance save an ulcer on one side, such an ulcer as you might suppose had been produced by the irritation of a jagged tooth. And yet in this case, the tongue with this exception being quite natural, the disease was running on to a fatal issue. There is no regular relation to be observed between the state of the tongue and that of the bowels: you can predict nothing with regard to the intestines from looking at the tongue; but I think there is a relation between the condition of that organ and the state of the general system: if there be much febrile irritation you generally find the tongue more or less red and dry. Another indication of irritation in the bowels is pulsation in the abdominal aorta, sensible to the patient, and felt by you on placing your hand over the artery—a pulsation not indicative of over-action in the vessel, but rather of a relaxed state of its coats, attributable to the demand made upon it for an increased supply of blood to the irritated or inflamed intestine. All these symptoms depend upon the specific enteric disease of which I have spoken. You are probably aware that there are two sets of follicles in the intestinal mucous membrane—the “solitary glands,” which exist innumerable throughout the whole, from pylorus to anus; and “Peyer’s glands,” which are in patches in the small gut alone, but in greatest number close to its lower end:

both are the seat of the affection with which we have now to do.

There is more or less inflammation of the general mucous surface; but its degree as evidenced after death by the redness and softening of the membrane, and during life by the pain complained of, is no measure of the degree of injury which has been done to the bowels: the disease may be going on without much inflammation. It appears in two shapes—first, elevation of the follicles above the general surface by a peculiar submucous effusion, making the membrane sometimes nearly a quarter of an inch in thickness. This has been looked on by some as owing to the formation of a peculiar matter, which they call “typhous deposit:” I have made a number of microscopic examinations of these febrile lesions, and have never found any such matter; I could perceive only a great thickening and infiltration of the cellular tissue. Sometimes ulcerations take place on the surface of these raised patches, or of the enlarged solitary glands; occasionally the mucous membrane sloughs, at other times it softens and ulcerates without sloughing. This is the first form in which we meet the disease in question.

In the second form there is no submucous thickening, no elevation of the membrane. The lesion begins in the form of ulcerative erosion, either on the solitary follicles, or the longer patches of the agminate glands at the lowest point of the ileum. Portions of the membrane soften and dissolve or slough away, leaving an ulcer, and the muscular tissue is often

so exposed; a little more, and it gives way, and peritonitis of course results from the perforation. I can tell you of no symptoms by which you will during life distinguish these two forms of ulceration; but I am quite certain that they *are* distinct. Similar ulceration we find also in the great gut, affecting there of course the solitary follicles.

To give you a clearer notion of this disease, I shall read two brief records from my inaugural essay, in which I called them "examples of the pure intestinal disease," as distinguished from typhus:—

"Duncan Black, aged 27. Became ill on the 6th of September; died on the 4th of October. *Inspection*, after twenty-two hours. Ileum and large intestine very vascular; the first appearance of follicular disease in the former was slightly enlarged Peyer's glands; they were soon seen of a deeper colour, passing on to dark purple, and some of them presenting tubercles of the size of a pea; purple sloughs, followed by eroded penetrating ulcers of an irregular form, appeared further down; they had elevated blackish edges and patches of intense vascularity; some solitary glands just at the lowest part of ileum."

"Hugh Macfarlane, aged 20. August 2d, Pyrexial symptoms following exposure to cold a fortnight ago; died on the 3d, at three A.M. *Inspection*, thirty-four hours after death. The first appearance of intestinal disease was seen in the middle of the jejunum, in the form of enlarged solitary glands, somewhat resembling the variolous pustule; they

were numerous as the intestine was traced downwards; they studded the whole ileum, colon, and rectum, being generally of a red colour and of the size of a pea; in the cæcum they were so thickly set as almost to conceal the mucous membrane; Peyer's glands were also much enlarged, forming elevated patches sometimes a couple of inches long, and many of them two lines thick, while their surface presented in many places superficial ulcers."

Sometimes, as I have said, perforation takes place, and fatal peritonitis follows, unless in those rare cases in which peritoneal inflammation opposite the ulcer causes adhesion to one another of two portions of the intestine, and thus prevents their rupture. Peritonitis however sometimes arises independently of perforation, upon simple communication of the irritation from the mucous surface. The ulcers are by no means necessarily fatal; we have undoubted proof that they may cicatrize: Rilliet and Barthez state that they have seen these cicatrices in children as early as the twenty-sixth day after the beginning of the fever; in adults I presume healing will take longer to come about. When ulcers exist the mesenteric glands are almost invariably enlarged, swollen sometimes to a great extent; they never, as far as I have seen, suppurate; but they are congested, turgid, and red. Now you can easily see how such a local disease as that which I have been describing tends to prolong the fever far beyond its natural period. Thus it takes on more of the nature of a local malady than of a fever; there come on

emaciation, and great debility accompanying the diarrhoea; the skin becomes dry and harsh, there is a hectic flush on the cheek, and the patient, if not carried off by peritonitis, dies exhausted. But perforation may occur most unexpectedly, having been preceded by very slight obvious symptoms. On one occasion in the hospital here, when I had charge of the wards as clerk, there was a patient in this fever who appeared almost convalescent. He slept in a room by himself, was visited by me in the course of the evening, and made no complaint: in the morning the first person who went in found him dead. On inspection his death was found to have arisen from peritonitis in consequence of a perforation of the bowel, which must have happened after the evening visit.

The *special* management of this fever of course depends upon the local lesion which characterizes it, but is always to be superadded to such treatment as may be suitable to the type which the disease puts on. Stimulants for example may be required, or sedatives, as in the various types of other fevers; but in addition to these we must always have reference in our treatment to the presence and the nature of the enteric lesion, while indeed this fever is on the whole more uniform in its character and on-goings than most others. The congestive type I believe does not occur; the inflammatory type is perhaps very seldom observed: for this is a fever which for the most part begins in an insidious way, inconsistently with the nature of either of these types.

In the early stage, if the patient's strength be good, I think you will find it advantageous to apply a few leeches over any of the tender portions of the abdomen. But in doing so remember that you have to deal, not with common inflammation, which you may hope to cure outright by such proceedings, but with the inflammation of a fever, as in the case of the sore-throat of scarlatina. We therefore hope by leeching and other means to modify, to temper, for we cannot arrest the progress of the malady. Nothing is more soothing to the patient than warm poultices or fomentations applied to the abdomen; these ought to be kept on constantly; and afterwards when the disease has advanced a little, when the acute or inflammatory stage may be supposed to have passed away, blisters, especially over the right iliac region, where the affection is always greatest, are of much advantage. They ought to be of moderate size, so as not to exhaust the patient, but may be repeated as occasion demands.

The medicines required in these cases ought to be given always with reference to the irritated state of the bowels. Never, although there be diarrhoea, pour into the stomach coarse astringents, such for instance as chalk mixture, tincture of catechu, and so on. Remember that you have to deal with a mucous membrane in an irritated, angry state, ulcerated in all probability, the ulceration perhaps on the point of penetrating through the gut: be cautious therefore; let your remedies be of small bulk, and in as mild a form as possible. You will find that the acetate of

lead is a very useful remedy, soothing the irritation, and acting as a mild astringent. Small doses of tannin are also beneficial; it may be given in pill made up with a little glycerine, and works to the like good effect. Sulphate of copper in quarter grain doses may be given in similar cases, combined with a very little opium; for I think you will find it advantageous to give small opiates, as long at any rate as there is diarrhœa. Never however give opium in such a quantity as to lock up the bowels—but only to soothe and check their peristaltic motion. The immediate effect of constipation would be to confine the various secretions, and to increase the uneasiness and distension. In cases resisting these means, Dr. Wood advises us to give blue pill; but I have myself had no experience of this. He orders one grain of the mass to be given every second hour; and when the tongue cleans, but instead of becoming soft and moist is dry and red, he strongly recommends small doses of oil of turpentine as of specific efficacy.

With regard to the diet, it ought to be of the very mildest. Arrow-root, gruel, beef-tea or chicken soup, are the only substances which in general ought to be allowed—substances which are either absorbed directly from the stomach, and so do not pass through the bowels at all, or which, if they do pass down, do so in a semi-fluid, rather soothing form. Nothing coarse, solid, or irritating should be permitted to pass into the tender intestine.

On the occurrence of peritonitis, with its charac-

teristic distension of the belly, acute pain, tenderness to the touch, vomiting, and rapid weak pulse, I need hardly say that the patient may almost be given up. It is said that such cases have recovered. I have seen a considerable number of them in the Infirmary, and never had any reason to suppose that one got well. If you have a recovery at all, it will be through soothing the patient by large doses of opium, so as to keep down the nervous irritation, and diminish the action of the bowels.

We now come to inquire what relations, if any, exist between typhus and this enteric fever. "Glar-ing instances" of the diseases, as we have seen, are sufficiently distinct; their symptoms, course, and morbid anatomy being utterly diverse, except in so far as *any* two fevers may assume types and phases which bring them, therapeutically considered, into alliance. But what are we to make of cases like that which I shall now read to you from my notebook?

"J. F., aged 27, a domestic servant, died on the eighteenth day of a fever characterized by the presence of a *very copious and livid typhous eruption* over the body and extremities. On inspection of the body we found the mucous membrane of the duodenum covered with enlarged solitary glands, softened and ulcerated, so that in some places the peritoneum alone remained of the coats of the bowels. Peyer's glands were enlarged throughout the greater part of the jejunum and ileum, a patch in the lower part of the latter being about five inches long; and an

excavated ulcer existed in its vicinity. The small and large intestines were besprinkled with numerous enlarged solitary follicles."

The generalizing faculty would readily conclude from this case that typhus and enteric fever are identical: but listen to two more:—

"Jane S. died of asthenic confluent *small-pox*, at the period of maturation. On opening the body we found on the mucous surface of the ileum a number of enlarged Peyer's glands, two of which were ulcerated."

"Mary S., aged 16, was admitted on the fourth day of fever; there was copious *scarlatinous* efflorescence over the body; she had sore throat, and a tongue white, and florid at the tip and edges. Two days after, she died, having passed a large quantity of blood by stool. On inspection we found the whole of the ileum of a deep red on its mucous surface, and thickly besprinkled with enlarged solitary follicles. Peyer's glands were also much enlarged and ulcerated; and many swollen follicles were scattered over the colon."

Now can we suppose it possible that small-pox, scarlatina, and typhus are *all* identical with enteric fever, because these cases prove that the special lesions of that disease may coexist with each of them?—Thus, by a *reductio ad absurdum*, the position falls.

I have notes of the case of a young man, aged 22, who was a patient in the hospital here with every symptom of enteric fever, including the characteristic

eruption. After a month's stay he went out convalescent; but while at his work five days thereafter, was suddenly taken ill again, and re-admitted, having the *typhous* eruption out on him, though the symptoms of this second fever were still partly intestinal. He slowly recovered. This case seems to me to place the non-identity of the two fevers beyond a doubt; and as we have already had proof that measles and scarlatina may coexist, why should we hesitate to admit that typhus and enteric fever may also occur combined? Besides, the late Dr. Todd stated that he was convinced he had observed the coexistence of the two eruptions.

But perhaps I cannot better express my views of the matter than by reading to you some passages from the pamphlet to which I have several times referred, as printed by me in 1840, and submitted as my inaugural essay to the Faculty of Physicians and Surgeons:—

“A description has already been given of the ulceration of the intestinal mucous membrane sometimes observed in typhus; we have now to consider whether it be proper to, or a complication of typhus. Its characteristic symptoms, when occurring independently of typhus, are first the long duration of the disease, death rarely occurring before the thirtieth day; while we have seen that in pure typhus the majority of deaths happen before the seventeenth. A peculiar harshness of skin, partial flushing of the cheeks, or a sunk look of intense anxiety, restless, not muttering delirium, with frequent meteorism,

form the chief remaining symptoms peculiar to this affection. . . .

“I think no one who glances over the tables which I have given, can doubt that intestinal disease is by no means a necessary, is in fact comparatively a rare, concomitant of typhus; if we except that congestion, which, being found in every organ, is no more necessary to typhus than is cerebral, pulmonary, or hepatic congestion, all of which, though generally present and causative of certain symptoms, are so in varying degree, and sometimes not at all. . . . If instead of congestion, follicular disease occur, in its early stages it is still unmarked by any change of symptoms: when it has proceeded to ulceration, or is rapidly passing to that state, what are those which characterize it?

“When follicular disease of the intestine occurs as a complication of typhus, there is generally merely an increased violence in the ordinary symptoms of the fever, particularly the delirium; and frequently the complication of some external affection. . . . The head affection too is more frequently stupor, or violent delirium, than the anxious excitement or depression we have already mentioned. Pain of the abdomen was observed in one only of the cases, except those of peritonitis. The duration of the disease is less, usually under twenty days. . . .

“In both cases we have a *mixture* of typhus and a local disease, in which the peculiar symptoms of the latter are obscured by those of the constitutional affection, so as to give rise to a set of symptoms

belonging properly neither to the one nor the other. Typhus then is as distinct from intestinal lesion as from pneumonia, although both these diseases, when approaching the fatal termination, assume typhoid symptoms."

These are the results at which I then arrived, after a very laborious study of the fever cases admitted to the hospital during the time of my clinical clerkship there. I had the pleasure and advantage of the co-operation of my valued friend Dr. A. P. Stewart, now physician to the Middlesex Hospital, who published in 1840 his decided opinion as to the "non-identity" of the fevers in question. At that time I considered the intestinal lesion to be, not the local lesion peculiar to a distinct fever, but a purely local malady, which might be implanted upon any fever; but as I have told you, I now think that its presence is the local effect of a particular fever, which, however, may be mixed up with others—at all events with typhus, variola, or scarlatina. But as to the difference between this intestinal disease and proper typhus, we had then no doubt; the very nurses used to speak of a patient's having had "only that bowel fever," as a reason for not sending him to the convalescent ward. Their coexistence is no greater proof of their identity than a man's having the misfortune to break *both* his arm and his leg by a fall would be a proof that these injuries were in fact the same.

LECTURE VIII.

GASTRIC FEVER.—THE BILIOUS FEVERS; RELAPSING FEVER.

THE third of the ordinary continued fevers of this country is GASTRIC FEVER, of which I am prepared to hear it said by many that they cannot see its distinct character. I believe it, however, to be a separate disease on the like grounds to those on which I hold enteric fever to be different from typhus, and shall endeavour to give you what I conceive to be its specific characters.

This, more than almost any other fever, presents a variety of types, and different grades of severity, which you can hardly recognize as belonging to the same disease. Its great peculiarity is its constant connection with an inflamed or irritated state of the mucous membrane of the stomach and bowels. The affection of the stomach distinguishes it from enteric fever, while that of the bowels is quite diverse from the follicular lesion proper to that disease, but to which there is here no tendency, though there is often very great irritation of the mucous membrane, going

on even to ulceration; and we have a diarrhœa, but quite unlike that which I have described as occurring in enteric fever. Gastric, like enteric fever, I believe to be contagious, though in a less degree than the proper exanthemata, and like all the other specific fevers it may prevail epidemically. More than most it is, I believe, connected with what early in these lectures we called "effluvia," emanations, that is, from decomposing animal matter, which seem to me sufficient of themselves to produce the disease; and it often assumes more or less of a remittent character which is not observed in the fevers we have hitherto been describing. Its *eruption* is the most obscure of the three which belong to the imperfect exanthemata, and also the most inconstant. It does not appear, like that of typhus, over the whole body; but like the spots in enteric fever, only on the epigastrium and abdomen; yet unlike these, it is not elevated nor pink. It consists of a few small, insignificant-looking, red spots, which you would probably not observe unless you looked for them, and which appear about the seventh day of the disease.

Now as I have said, this gastric fever is most irregular in its stages, forms, degree, and symptoms; and therefore when you have to do with it, you ought never to give any positive prognosis as to its course and duration. It may be short, it may be very tedious, weeks sometimes elapsing wearisomely, while the patient gets indeed no worse, but is certainly not any better. It may attack persons of any age, the youngest child or the grown up man; its invasion is for the

most part insidious and gradual, so that some have called certain forms of it "walking fever," because the patient may go about for days complaining of vague discomfort;—miserable he knows not why—having no particular complaint to make, and yet most unhappy; and this goes on day after day, until at last it becomes plain that he is in fever. The symptoms, as I have said, vary much; but through them all there continues this undefined wretchedness and depression.

Sometimes gastric fever puts on the congestive type; I think I told you before of one very marked example in a young lady. The forms in which the disease is commonest are four—the first being what we may call *the mild type*, which however does not generally go by the name of fever, but by that of "a bilious attack." The patient is feverish, has a quick pulse, his tongue is loaded, the evacuations from his bowels are unhealthy and somewhat loose, and his urine deposits lithates. This state of matters continues for a few days, and then he gets well. The disease can in many cases be traced to foul emanations from drains or cesspools.

The *ordinary form* of gastric fever, however, is a much more serious disease. After the insidious beginning which I have described, there is gradually advancing fever, accompanied by more or less diarrhœa and abdominal pain, which however, like all the other symptoms, are exceedingly variable. There is uneasiness in the stomach also, with vomiting, which is sometimes very obstinate and long-continued.

Occasionally in the slighter forms the patient can take some food, but generally speaking, he has not the smallest appetite. His pulse varies exceedingly : I have seen it beating with normal frequency during the whole disease; at other times it is extremely rapid. The tongue may in one case show by its redness, and its angry, cleft, or fissured aspect, that there is much gastric irritation ; in another it may be soft, and thickly loaded with a yellowish or whitish fur. The evacuations from the bowels present the same diversity of character, being sometimes dysenteric and chiefly composed of mucus and blood, and sometimes being dark and fetid ; they are perfectly different from those which I yesterday described to you as proper to enteric fever, for the affection of the mucous membrane in the two complaints being quite distinct, of course the resulting secretions are also diverse. The morbid anatomy too of the disease is quite distinct from that of enteric fever. There may be ulceration, but the ulceration is not from follicular disease : the mucous membrane is vascular, often soft, pulpy, ulcerated in various places; but its follicles are by no means specially affected. Sometimes the head is perfectly clear from the beginning to the end of the fever ; at other times there is delirium, which may be violent, or mild and wandering. Occasionally copious hæmorrhage occurs early in the disease, I suppose as a consequence of congestion of the mucous membrane of the bowel, not, at this stage, from ulceration, and I have seen a very large quantity of blood lost in this way.

In the treatment of this disease the great point is to attend to the state of the mucous membrane. You will find it, I think, of advantage to open the bowels at the outset of a gastric fever, but certainly not to over-purge. I think that moderate doses of grey powder, or even of calomel, given *very early* in the disease, do good; but the period for this treatment is soon over: the intestinal canal becomes very susceptible in the further stages of the disease, and generally even mild laxatives are neither borne nor needed. You must of course attend to the various symptoms which may exist, according to the principles which I have already endeavoured to lay down for your direction. You must feed the patient if his tongue be in such a state as to make it likely that he will be able to assimilate arrow-root and beef tea; you must use sedatives or stimulants as his case may demand, observing carefully, as in other fevers, the phases which the malady assumes; but the mucous membrane must receive your special attention. In the early stage, if there be any tenderness on pressure over the stomach or abdomen, or if there be redness and dryness of the tongue, indicating gastric irritation, do not hesitate to apply a moderate number of leeches, following them by constant poulticing, and ultimately by the application of a blister; and all you do must be with the view of soothing as much as possible the irritated mucous surface. You will find that small doses of ipecacuan and nitrate of potass serve to promote this end: lime water too tends much to allay the irritation, and little pieces

of ice may be swallowed now and then with great comfort and advantage; and if stimulants are required when the stomach is thus irritable, probably champagne or brandy and soda water is the most likely to lie quietly on it; and while thin arrow-root gruel, or a warm solution of isinglass, soothes and sheathes the mucous surface of the bowels, milk, which we commonly look upon as so mild a food, does not suit these cases at all: the undigested curd lies heavily upon the helpless stomach.

Sometimes there is no pain, no tenderness, no redness or dryness of the tongue; but simply diarrhœa, with a flaccid belly, and a soft, pale, white tongue. In these cases I think you will find calomel useful if given cautiously and in small doses—two grains for example at a time; and when the tongue, towards the close of the disease, continues tediously loaded, furred, and white, though soft, you will find the mineral acids, and bitters, such as calumba, of great use. They act as useful tonics to the congested mucous membrane; and you will find the tongue clean, and assume its natural appearance coincidently with an improvement in the state of the bowels. The diarrhœa ought never to be suddenly stopped, but only moderated: thus mere astringents would be worse than useless; our object ought to be not directly to dry up the discharges, but to remove that state of the bowels which occasions them; and opium, which we find very useful in small frequent doses, is to be looked upon less as an astringent directed against the looseness, than as an anodyne

with which we try to combat the irritation of the mucous membrane.

If there be one thing more necessary than another in the after treatment of gastric fever, it is that at the period of convalescence, when the appetite of the patient has returned, every care should be taken to prevent him from indulging it too freely; for in this fever above others the stomach is left weak and tender.

Sometimes gastric fever puts on a *lingering character*. If typhus linger on beyond a fortnight, we know that there must be some complication, or that some sequela has occurred. If enteric fever be continued beyond three weeks, we know that it is prolonged by the existence of intestinal ulceration; but gastric fever may go on week after week most tediously, and yet still be uncomplicated gastric fever. Sometimes these cases are so slight that it is only by observing the tongue to be always loaded, the evacuations from the bowels always unhealthy, and that every night there is a renewal of the febrile heat, that we can convince ourselves of the patient's being really ill; for during the early part of the day he is apparently comfortable. These cases are as annoying as they are tedious. I think the treatment is best conducted by administering gentle mercurial alteratives, to be succeeded by one of the mineral acids; while nourishment and it may be stimulants are regularly given, and the skin frequently sponged with tepid water.

A very important form of gastric fever occurs in children. In them sometimes indeed it is very severe;

and it is then generally accompanied by great emaciation, the absorption of nutriment being almost entirely hindered by the condition of the gastrointestinal mucous membrane. The child may be worn to a skeleton, and frequently presents a most distressing appearance, from the effect of his irresistible tendency to pick his face and nose and the points of his fingers, which are often ulcerated and bleeding. Usually, however, the disease in children puts on a milder form, which has gone among authors by the name of *infantile remittent fever*. Some consider this to be enteric fever; and there is no doubt that children are subject to enteric fever, but with its usual characters, the pink slightly elevated eruption, the diarrhoea with pale or pease-soup-like evacuations and so on; none of which are symptoms of gastric fever. In what I have been in the habit of considering as infantile remittent, we have sometimes an eruption, but it is the eruption peculiar to gastric, and not to enteric fever: we have diarrhoea, but the evacuations are dark or slimy. The disease puts on a distinctly remittent character, and thus approaches the malarious fevers, which we shall by and by find are always of the periodic form. Generally speaking night is the time when the child is worst: during the day he complains perhaps, and is a little fretful, uneasy, and languid; his skin is dry and his temper irritable, and he does not care for his usual play. In the evening he becomes feverish, sometimes with a precursory chill, and during the night he is flushed, hot, and restless, and his tongue is for the most part

loaded in the centre, and red at the edges and tip, indicating irritation of the mucous membrane.

In the first place then address your remedies to soothe this irritation; and in proportion as you effect this, so will you tend to shorten the course of the disease, since this is not a fever of regular duration like typhus or the exanthemata, but one the progress of which appears to be much more under the influence of the local lesion; and the more you can control the latter, the more you can soothe the irritation of the stomach and bowels, the more you shorten the duration of the malady. The child if possible should be confined to bed, should be placed each night in a warm bath, which has a very powerful effect in soothing the intestinal irritation; and hot poultices should be applied over the abdomen; in most cases there is no necessity for local depletion. In addition to these external means, citrate of potass in effervescence, with hydrocyanic acid and magnesia, may be given at intervals during the day, and in the evening a little grey powder with rhubarb; and if there be much flatulence you will find that an enema of castor oil and spirit of turpentine is very beneficial. By this means, with attention to secure that the diet shall be mild yet nourishing, we generally succeed in cleaning the tongue and removing its redness on the tip and edges; the bowels get into better order, the evacuations become more healthy, and you expect the child now to get well. But he does *not* get well, is still weak and fretful, and in the evenings has his usual exacerbation of fever. Now is the time to

address yourselves to the nervous system, the derangement of which is indicated by the periodicity of the ailment; and for setting this right you will find nothing so useful as quinine. Usually the child is by this time weak, and brandy and water in moderate quantity, or wine, will do him good; it is now also that a change of air, provided the season be suitable, will be of use; but cinchona in one shape or another is our chief means of cure.

Sometimes indeed gastric fever puts on a very remarkable aguish character. I remember one case in which the child had been exposed to the emanations of an ill-drained house, which was surrounded besides by rank vegetation. He took gastric fever with all the symptoms which I have described. This was followed by chilly fits coming on periodically, and to which he was for long afterwards subject; months, indeed more than a year afterwards, on any unusual mental excitement or violent bodily exertion, his limbs would get as cold as marble.

Thus while the three diseases we have been considering are linked to the eruptive fevers by the almost perfectly exanthematous typhus, they attach themselves through gastric fever to those which arise from malaria; for both in respect of its occasionally endemic origin and of its periodic character, gastric fever draws itself very close to ague and malarious remittent.

And so we are led on to the BILIOUS FEVERS, of which the great distinguishing character is a tendency

to hepatic derangement, which may exist in any degree, from the slightest to one the most severe and fatal.

Simple fever, as I formerly defined it, puts on in some persons the bilious character, affording us a good opportunity of studying the phenomena in their milder form. The usual chill and reaction indicate the presence of fever. Nausea, and often vomiting; a yellowish thickly loaded tongue, a bitter taste in the mouth, and utter disrelish for food; uneasiness in the epigastrium and over the region of the liver, where there is sometimes fulness to the touch; and painful flatulence—are the symptoms which mark this special state. The urine is generally loaded with lithates and colouring matter, and the evacuations from the bowels with bile. Sometimes yellowness of the conjunctiva strikes as it were the keynote of a malady which belongs to the same great class as the fatal yellow fever. A mercurial and saline purgative is commonly the speediest means of reducing these various symptoms; and like other examples of our “simple fever,” the non-specific, non-contagious malady gradually subsides.

This however is but a faint shadowing forth of the symptoms of the specific Bilious fevers. Hepatic pain and tenderness sometimes most acute, deep jaundice of various hue, urgent bilious vomiting, are often its well marked characters; and very generally there are superadded unequivocal symptoms of gastric irritation, whence some call these “bilio-gastric fevers.” Constant distressing vomiting, frequently

of altered blood springing from the congested mucous membrane; burning pain at the pit of the stomach, and urgent thirst, indicate this complication; while not unfrequently diarrhoea as in gastric fever, with mucous or bloody stools, adds its part to the patient's suffering.

After death the liver may be found congested, softened, and variously altered; but the jaundice is not accounted for by any obstruction in its ducts; it is a symptom of a more deeply seated derangement, an interruption to the eliminative power of the organ hitherto unexplained, though in its effects easily recognized. This jaundice is peculiar to the fevers of which I am now speaking; in any others, yellowness of the skin is too sure a sign of impending death, as we have seen in considering the arthritic sequela of typhus, and shall yet find when we take up puerperal fever.

The Bilious fevers are three in number,—Relapsing, Malarious, and Yellow fever; relapsing fever being epidemic and contagious; malarious fever endemic and non-contagious; and yellow fever, like the first, both epidemic and contagious, but also connected to a certain extent with endemic malarious influence. The malarious fever again falls into two divisions, Intermittent fever, which we call Ague, and the Remittent, which in severe cases passes into the continued form; but in all these bilious fevers we can observe some tendency to periodicity.

The first variety, as I have said, is RELAPSING FEVER. All the fevers of which I have been hitherto

speaking are daily observed to occur sporadically. Relapsing fever, as far as I am aware, appears only as an epidemic; I have never heard of occasional cases of the disease, and even the epidemics are very rare; in 1843 we had one here of great severity. The period of incubation is characterized, at least in some cases, by a more distinct phenomenon than belongs to the incubation of any other fever; a peculiar bronzed appearance of the countenance, which to those conversant with the disease was a token of its on-coming; but it is interesting to observe that in some cases, as Cormack has shown, the fever was prevented after this preliminary sign was quite distinct; an emetic, given on its occurrence, cutting short the complaint so that the actual fever never appeared, and thus proving the possibility of dislodging the enemy if you attack him before he has produced the incipient depression of the malady. If this have occurred, if the fever have been permitted to take the first steps, I do not think you can prevent its future march, however you may be able to modify or guide it.

The invasion of the fever which we are now considering is not usually gradual as in enteric and gastric fevers, but sudden as in typhus. When reaction is established and the disease is in progress, the tongue is generally white and soft, the pulse rapid but variable, and in particular there are very frequent muscular and articular pains, of which the patient complains sadly. Perspiration is another of its remarkable characteristics. In true typhus and the other fevers of which I have spoken, this occurs

only under two circumstances—either at the period of convalescence, as an indication of a favourable turn ; or when the patient is moribund, as the token of complete relaxation of the vital powers. But in relapsing, as in rheumatic fever, sweating frequently forms part and parcel of the malady, being often very profuse throughout the disease, without relieving the symptoms in the least. Of course it follows from this, that diaphoretics given with the view of inducing perspiration can be of no benefit, can bring no relief to the patient.

The great peculiarity of this fever, that from which its name is derived, is its relapsing character, for in form it differs from any other with which we are acquainted. In other fevers, when convalescence is established, it is, saving sequelæ, “*un fait accompli* :” here it is otherwise. Generally speaking there is a slight remission on the third day, but this is not of any great consequence ; on the fifth or sixth day, or in some cases towards the end of the week, the symptoms suddenly yield, not unfrequently with diarrhœa, and the patient becomes convalescent ; and if ignorant of the disease, you expect him to get now finally well. But if you have seen the malady before, you do *not* expect this. About the fourteenth or fifteenth day a relapse takes place, the new attack presenting all the previous symptoms, sometimes even with aggravation. The second attack in this relapsing fever lasts again five or six days, and is followed in favourable cases by convalescence like the former one, and sometimes sub-

sequently by a third relapse; but such a third attack is rare.

This is the description of an average specimen of the fever; but it sometimes puts on a much more severe form, in which there is an aggravation of what constitutes in every case a part of the tendency of the disease, congestion of the vascular viscera; of the liver in the first place, and also of the lungs, spleen, and brain. At the outset of these serious cases the face is quite purple from venous congestion and the altered state of the blood; and there are also cerebral congestive symptoms, confused delirium and a tendency to stupor, sometimes deepening down to coma. Breathlessness and obscure cough indicate congestion of the lungs; and some fulness in the left side that of the spleen. In particular, and as the characteristic symptom, there is hepatic fullness and tenderness, evidencing more or less congestive disease of the liver; general jaundice, often very deep, and even vomiting of matter almost as black as that proverbial in yellow fever; being obviously altered blood, blood forced from the vessels of the gastric mucous membrane, and altered by the secretions which it meets with there.

Then the kidneys too become congested; we have, as one of the most serious symptoms of the disease, suppression of urine and consequent non-elimination of urea—the patient becoming comatose, and often dying convulsed. In these bad cases, “septic” phenomena often make their appearance; purpura spots come out over the body, and sometimes hæmorrhage

from the bowels supervenes. In the worst cases there is no remission, and the disease assumes the continued form; but this conversion of a periodical into a continued case is not peculiar to relapsing fever; it occurs sometimes in all periodical fevers, such as the malarious and the puerperal.

The *treatment* of this serious form is always very difficult, obviously from the extent to which the important viscera, the brain, lungs, liver, and kidneys, are congested, and their functions in consequence impeded. General bleeding cannot ordinarily be employed to diminish this congestion, for the patient is usually, even at the outset, too much depressed to bear it; in the early stages, however, leeches may be applied with advantage over the liver, the back part of the lungs, the lumbar region, or the nape of the neck, according as each of the viscera may be affected. Thorough and effective revulsion by the application of turpentine stupes over the various parts engaged, ought always to be employed; and the bowels should be kept open for the purpose of unloading the portal system. We may hope too by the use of colchicum in moderate doses to stimulate the kidneys to resume their action. In other respects the treatment of this fever must vary with the type which it assumes, as I have so often explained to you.

It is followed by very interesting and very important *sequelæ*; one of the most common is *rheumatism*, reminding us of scarlatina, in which also the kidneys are affected. We have swelling of the legs, swelling

of the knees and ankles, sometimes excessive pain in the joints and bones. Again, swellings of the lymphatic glands are very frequent in different parts of the body; but the most interesting of all the sequelæ is that affection of the eyes which Dr. Mackenzie first described under the name of *Postfebrile ophthalmitis*. It occurs at a variable time in relation to the fever; sometimes before convalescence, and at other times even months after the original disease. When the relapsing fever occurred here in 1843 it was very frequently followed by this sequela, multitudes of cases having been treated at our Eye Infirmary. The affection put on two different forms; in one case it began as active inflammation of the shell of the eye and of the iris; in the other as amaurosis, seemingly from congestion of the choroid and the retina: the two forms of ocular disease pointing us back to the double characteristic of the fever itself—to the tendencies to visceral congestion, and to rheumatic pains; and the constitutional character of the ophthalmia was in many cases proved by the unhealthy aspect of the blood, which flowed dark, in some cases almost tarry, from the vein.

We learned very important lessons from the treatment of this ophthalmia—lessons which tell against some of the theories which are fashionable at the present day. The previous fever and the actual debility of the patients made us at first eschew anything like depletion; but we found on the failure of other means that bleeding was the most effectual—the only effectual—mode of cutting short this

dangerous ophthalmia. We took blood from the arm; the drawing of two ounces was in some cases sufficient to make the patient faintish; but by that small loss we gained our object as we could not attain it by leeching, even to much more copious effusion of blood; it had, I am perfectly satisfied, an effect which no other mode of treatment could have produced—the effect of arresting the inflammation which would soon have destroyed the eye, as amply proved to us by the result of neglected cases. And this, you will notice, when the patient was a convalescent from a serious fever, and seemingly so weak, that tonics and wine might rather have been thought of. I remember one woman who came to me perfectly blind of one eye from the congestive form of the disease; she was bled, and next day returned seeing perfectly well. The disease had been completely “dispersed,” and never passed into the effusive stage. I think this reads us a very important lesson in the treatment of inflammation;—that venesection is not useful in those cases alone where we have plethora or vascular overaction, but also in some at least, where very opposite conditions exist; and in which the (by me) undoubted practical fact of its beneficial efficacy may be accounted for by supposing that the removal of a certain quantity of depraved and morbid blood gives not only a relief to the local “hyperæmia,” but also a stimulus to a more vigorous assimilation, and a consequent improvement of the vital fluid, which is the best foundation for remedying the local ailment.

The next lesson which we learned from these cases

was that mercury was the only trustworthy drug in this disease. Again and again, in tens and scores of cases did we observe, that just as the system became affected by the medicine, just as the gums were touched, the eye, which had till then shown no symptom of improvement, began to get well. The dogma that mercury is of no avail in the treatment of inflammation, is in my opinion a dogma as pernicious as it is unfounded; nay even asthenic inflammations, provided only they be of an adhesive nature, like those of serous membranes, and provided the vital power be maintained by sufficient nourishment, are overruled by mercury as by no other agent. Of course you must use it moderately; you must not salivate, you must merely touch the gums. And the lesson which we thus learn from the visible inflammations of the eye, I have no hesitation in advising you to apply to inflammations of the invisible viscera. Do not, I beseech you, be seduced into believing that inflammations ought to be left to nature's curing, or that bleeding and mercury are worse than useless in treating them. Neither bleeding nor mercury is useful in *all* inflammations, nor in any inflammation at every stage; but the notion that they are *never* beneficial took its origin with those who are more disposed to theory than conversant with practice; and who, dealing principally with advanced cases admitted into hospitals, got into the way of thinking of the inflammation as if it were identical with its own products; defining it by describing the changes of structure which it produces; forgetting that there is such a

thing as arresting an inflammation *before* these changes occur ; and shutting their eyes to the positive clinical proof that the disease may be checked, and the absorption of the effusions promoted, by the agencies of which I have been speaking. "*Leviores morbi Naturæ viribus satis tuto relinquuntur ; sed nemo sanus . . . visceris cujusvis inflammationem iisdem commiserit.*"

LECTURE IX.

AGUE AND MALARIOUS REMITTENT; PESTILENTIAL
YELLOW FEVER.

THE PHLEGMONOUS FEVERS: PLAGUE;
PUERPERAL FEVER.

WE now take up the MALARIOUS FEVERS, of which the worst are happily unknown in Britain; and even ague, their mildest form, though familiar in some parts of the island, has had its sustenance so much drained away in Scotland that it may be looked upon as being here, Dodo-like, extinct. I shall in consequence refrain from inflicting on you a long description of maladies of which my knowledge is chiefly derived from books; merely noting as much concerning them as may be necessary to give completeness to the general outline of fever which I am endeavouring to trace.

The marsh poison causes fever in two forms—the *intermittent* and the *remittent*, the latter of which in bad cases becomes *continued*. It is apparently the intensity of the poison which regulates whether the disease shall be of the one or of the other form. The first is that in which it occurs in Britain—always ague; whereas in warmer countries remittent and

even continued malarious fevers are very frequent. Periodicity is not a peculiarity of any fever as fever, but belongs to the nervous system; and some indeed, as Dr. Watson, class AGUE under nervous diseases. But it is also undoubtedly a regular fever, though closely connected with the nervous system—the part first affected by the malarious poison in the blood. The three stages of fever—depression, reaction, and subsidence—are typically exhibited in its cold, its hot, and its sweating stage. One such succession is an attack of ague-fever; but a recurrence takes place, and next day you perhaps have a repetition of the three phenomena, which may occur again and again in indefinitely prolonged succession.

There are many varieties of ague which you will find described at length in the works of those authors who have had opportunity to observe the disease. We have the quotidian, in which the fit occurs at intervals of twenty-four hours; the tertian, in which it happens every second day; and the quartan, occurring every seventy-two hours. There are besides curious complexities connected with this disease. Sometimes two agues coexist, or to use our early simile, are harnessed at once to the same patient. Sometimes these happen on the same day; and we have two on Monday, for example, two on Wednesday, and two on Friday—one in the morning, and the other in the afternoon: in other cases there is an attack, say on Monday, repeated on Wednesday, and again on Friday; and we have a different fever occurring on the Tuesday, Thursday, and Saturday.

These are curiosities in the progress of the disease, and it is very interesting to study them; yet on the whole it is more satisfactory—to the patient at any rate—if we can cut him adrift from the ague altogether, rather than occupy ourselves in watching this intricate periodicity.

The phenomena of ague are much modified by the complications which may coexist with it. In all cases there is some degree of visceral disorder, in consequence of the congestion produced during the cold fit, especially in the liver and spleen; and ultimately this often ends in chronic disease of these organs. If between the paroxysms there be any symptom indicating such visceral derangement, you know that you have to deal with something beyond pure ague, and that you must use the rational means of getting rid of the complication before employing the specific for the nervous malady. That specific, as you all know, is quinine; but if there be hepatic, cerebral, or pulmonary congestion, this must be first remedied. Local depletion, purging, diuretics, may all thus be of necessity premised to the employment of the specific drug.

The treatment however of the paroxysm itself is sufficiently plain. In the cold fit you will naturally use the various warm applications suited to lessen the visceral congestion, and to add somewhat to the patient's comfort; and of all stimulants an opiate is now probably the most useful in bringing the fit to an end, and rendering the patient more easy while it lasts. When the hot fit begins, the ordinary cooling

measures are to be employed—tepid sponging, saline diaphoretics, and the rest; and when the perspiration sets in, care is only to be taken that the patient do not catch cold. Then comes the intermission, and before specific measures can be adopted, we may have visceral complications to deal with.

And this gives me the opportunity of repeating that, in spite of all that has lately been written, I entertain a firm confidence in the efficacy of leeching or cupping over the liver or lung, although there do intervene a serous membrane. It is said that because of this serous sac, local depletion cannot do any good in these visceral affections. The answer to this which was given long ago may still be repeated—the practical physician *knows* that local depletion in these circumstances actually does good; and therefore we will continue to use it on occasion without troubling ourselves too much as to the rationale of its action.

Quinine, our sheet anchor in controlling ague, ought to be pushed so as to induce the first stage of its specific action—the peculiar buzzing in the ears, and the headache, which are its characteristic effects when taken in considerable doses. I believe failure to cure ague or periodic tic is oftener the consequence of the insufficient use than of the injudicious choice of this great remedy. We may have occasion to give perhaps six grains of quinine every four hours, in cases such as these of which I am speaking. It acts apparently by fortifying the nervous system against the depressing effect of the fever-poison. It is a purely nervine tonic, and we find that we may use it as a prophy-

lactic also, giving it in moderate doses to people who *must* be exposed to the marsh miasmata. Some prefer giving the drug in smaller doses, and those only near the period of the expected fit, so as to meet and neutralize it. I believe, on the whole, experience has shown that the best way is to continue the administration of the quinine over the interval that elapses between fit and fit. There are other substances which act somewhat as quinine does in ague. Arsenic is one of them, but there are, as you will readily perceive, objections to the use of arsenic which do not hold against quinine, and thus it is only in the absence or on the proved inefficacy of the latter remedy, that we have recourse to the metal. If we give it, we gradually increase the dose of the solution until we find the patient can bear no more; not contenting ourselves with using it, as for skin disease, in minute and long-continued doses. In these cases an insensible chronic effect is needful to meet the chronic ailment; but in tic or ague we ought rather to increase the doses regularly, though cautiously, until we cure the malady or produce the signs of incipient arsenical poisoning.

There are two other substances, salicine and bebeerine, which have something of the same effect as quinine and arsenic, but possess so much less power that you would use them only in the event of not being able to obtain or employ the more energetic medicines.

“Pernicious fever” is another word for the severe types of ague. They are various. Ague occurs of the congestive, of the inflammatory, of the asthenic

types. And we have it accompanied by many complications—complicated with congestion or inflammation within the head, the chest, the abdomen; the last especially, as inflammation of the liver and spleen, which may be softened and almost broken down under the disorganizing influence of the disease, and which in the more chronic cases are often found, particularly the spleen, enlarged and indurated. These are the complications and the types to which, in foreign countries—for happily they do not occur here—the name of pernicious fever is given, and of which the treatment is much the same as that of the serious forms of the malarious remittent, to which we now proceed.

In fact, as I have already stated, this **MALARIOUS REMITTENT** is the same fever as ague, only in another form; and in severe cases it becomes continued. When marsh fever puts on the remittent form, we have in the first place, of course, the general symptoms of a fever—the shivering and the reaction—but the febrile action is not sustained; the patient becoming better at some part of the day, and again relapsing into his former state. The disease exists of all degrees of intensity; in the slightest cases we may have but two paroxysms, the whole being over in twenty-four hours: in the most severe, death may occur as rapidly as in plague. But throughout all the cases, slight and severe, we have more or less plainly three distinctive characteristics—first, a tendency to irritability of the stomach, evidenced by vomiting; secondly, the bilious phenomena, including frequently the

occurrence of jaundice; and thirdly, very severe headache.

All types, almost all complications of fever, are found in this disease. Sometimes death occurs most rapidly with the symptoms which I have called congestive, and this also goes in those countries by the name of pernicious fever. There occur too those of our toxic type—symptoms of poisoning: burning thirst, great oppression, constant restlessness, a feeble pulse, a tendency to vomit. A reaction probably takes place; the patient becomes hot and feverish, and then there follows the remission. Now, in any of our home fevers such an occurrence is safety; having passed from the congestive stage, as soon as a remission in the febrile symptoms of the reaction takes place we consider the patient out of danger. It is not so in the fever of which we now speak: shortly you will have another attack with the same toxic symptoms; and unless you have meantime struck in with a free exhibition of the specific during the period of the remission—unless you have given it in large full doses, say half a drachm—perhaps your patient may die in the second paroxysm. This is the difference between the expectations of the physician in continued fevers such as those with which we are familiar here, and those “pernicious” remittents of other climes; but even at home we have proof of the absolute necessity of *sometimes* giving these “heroic” doses of the remedy. I treated lately a case of periodic neuralgia which did not yield till I had pushed the quinine to thirty grains between each

paroxysm; and *then* the ears began to ring, and the pain ceased.

Sometimes the inflammatory type occurs: the reaction is very severe, there is intense headache, there is visceral inflammation in some one of the three great cavities of the body. At other times the fever is quite of the asthenic or of the septic type; great depression and exhaustion take place; hæmorrhage occurs from the stomach and bowels, the former with the well-known characters of the black vomit; and indeed throughout the whole of these severe diseases the phenomena tend conspicuously to be gastric. Hence the disease is called by some bilio-gastric fever.

As to complications, probably affection of the brain is one of the most frequent. The delirious excitement which I have just described sometimes ends in fatal coma, and sometimes a sort of insanity occurs. Brown records one case where in each paroxysm the man became insane—insane upon one point; he fancied he had stolen coals, and was very anxious as to the result, believing that he was about to be hanged for it—an idea of which he got completely rid during the remission, but which took hold of him again when the paroxysm of the fever returned.

With regard to the treatment, it would appear from the testimony of authors, that the congestive state at the outset may in some cases be removed by the use of an emetic and a mercurial purgative. But if these prove unsuccessful in arresting the disease, there is

no good object to be served by repeating them. The congested state of the mucous membrane very soon gives place to an inflammatory softening, which forbids purgatives and violent remedies of every kind. Stimulants are often greatly needed; indeed usually they are early in request, and must be freely given, just as in the asthenic type of any fever. But the vomiting is frequently so urgent that even brandy is not retained upon the stomach: champagne in this case is the best stimulant which you can use; camphor will sometimes be useful; and if there be no stupor, opium may be given to soothe the irritability and restlessness, and at the same time to support the patient's strength. If there be hæmorrhage, turpentine is perhaps our best astringent, and throughout the whole of the disease we must keep in view its malarious character, and give quinine as *the* specific.

The third of the Bilious Fevers is the well-known PESTILENTIAL YELLOW FEVER. This is very closely connected with that of which I have now been speaking; in fact it is hardly to be distinguished symptomatically from the more severe continued forms of malarious fever. It is, however, chiefly an epidemic malady, though partaking also of the endemic character. That is to say, it does not, like cholera or influenza, travel widely over almost all parts of the globe, from India to St. Petersburg; but is confined to certain *habitats*, although even in these places it does not constantly remain, but occurs only from time to time. Thus, from 40° north to 20° south latitude are about its limits geographically: as it

exists only where the mean summer temperature is maintained between 70° and 80° ; while it is generally found to prevail in cities—cities situated near the sea. Yellow fever, though proverbially a pestilence—proverbially severe—still, like all other fevers, *may* occur of any grade of violence. The typical cases indeed are very bad, but there are always slight as well as severe specimens of the epidemic. The congestive type is sometimes remarkably exhibited: a man walking along in health feels as if struck across the back with an iron bar, falls to the ground, and in two hours is dead: he dies before there is any reaction, before there is any local disease, so that on inspection you may find visceral congestion, from revulsion of the blood from the surface, but none of the specific changes which occur subsequently in this fever. The remittent form can be observed throughout; this, as well as other symptoms, connecting yellow fever with the bilious remittent which we have just described. If the patient survive the period of depression, there follows of course reaction, and then perhaps about the fourth day a remission, and after it increased illness, with a deepening down upon him of all the characteristic symptoms of the fever. There is no second remission, but only an increase of all the febrile phenomena, which indeed may put on any character, the inflammatory, the typhoid, the septic, or the hæmorrhagic, but always tend to asthenia, to depression of the powers of life; great sinking in connection with the bilio-gastric symptoms; intense epigastric pain, purging, vomiting, the matter vomited

being characteristically "black,"—altered, decomposed blood—and the skin at the same time assuming a more or less deep, but dirty, jaundiced hue. The septic phenomena are often highly marked; and ecchymoses, purpura spots, and hæmorrhage principally from the bowels, accompany the symptoms which I have mentioned; and after death, the mucous membrane of the stomach and intestine is found soft, red, pulpy, and often ulcerated. With respect to the liver—the organ which forms, so to speak, the centre of the phenomena—it is found, according to the reports of authors, in various states—sometimes greatly congested and softened; sometimes, it is said, having a dry, yellow, anemic look; and according to Dr. Lyons, is frequently in a state of fatty degeneration. There is one circumstance in which this yellow fever differs from others—from our own typhus, for example—and that is the frequency with which it goes on to a fatal issue, while the head remains quite clear. Fatal cases of typhus are very rare in which the patient remains sensible to the last: in yellow fever he is sometimes calm, clear, and collected till he dies.

The next division of our fevers is that which I have called the PHLEGMONOUS. These are characterized by a tendency to certain unhealthy suppurative or gangrenous processes, of the nature of abscesses and boils. The fevers in question are three—The Plague, Puerperal Fever, and Erysipelas. Two of these certainly, namely plague and puerperal fever,

may kill in the toxic and congestive stages before they produce any of the local results to which I have alluded. With regard to erysipelas, we do not know that it may so do; but I should not be at all surprised if there exist congestive cases of erysipelas also, which prove fatal before the characteristic inflammation appears, and which therefore are not reckoned as erysipelas at all; just as we have examples of scarlatina fatal without sore throat or eruption, and of plague fatal without carbuncles. This however is at present pure hypothesis.

The first of these three fevers, PLAGUE, I have never seen, and therefore what I say of it will be very brief. It is classed by Copland with yellow fever and cholera as a "pestilence,"—*the* plague, which like the others is not only epidemic but endemic, occurring from time to time, but only in certain regions, as for example the Levant—its seats in the world being somewhat different from those of yellow fever; and like the latter malady it does not always inhabit these localities. I believe it to be contagious. There is no necessity for discussing now the vexed question of the contagiousness of these three pestilences: you may possibly come to a different opinion from mine by studying the evidence upon the subject; but I content myself with stating my own conviction, obtained in the cases of plague and yellow fever from reading, but in the case of cholera from observation, that they are all contagious, but not so much so as scarlatina or even as typhus. The contagion is real, but is not very active.

The special characteristic of plague is the appearance of *carbuncles* and *buboes*—carbuncles being gangrenous inflammation of the cellular tissue in various parts of the body; and buboes, suppurative inflammation of the different lymphatic glands, in the groin, in the axillæ, and in other parts. These local manifestations are more or less severe. Sometimes, in the slighter cases—for there are slight cases of plague, although it be a pestilence—they are neither dangerous nor extensive; but in the typical examples they are very severe, and accompanied by the usual phenomena of the septic type of fever, namely hæmorrhages, ecchymoses, and purpura spots over the body; and after death the viscera are found softened, congested, and gorged with semi-fluid or entirely fluid blood. In no fever are the septic phenomena more remarkably manifested than they are in this carbuncular pestilence. But plague, as I have said, has mild as well as severe cases. This is not peculiar to it even among the pestilences; it holds as we have already seen, with respect to yellow fever, and it holds with respect to cholera. If you take the severe cases of cholera, the cases in which collapse occurs, and limit the name to them, the result is that you must look on it as a most severe and terrible malady; but if you take in all the cases which, though passing by the name of diarrhoea, rightly belong to the epidemic, you find that the mortality is by no means on an average so great.

Death in plague may occur with great rapidity in the toxic-congestive stage, the patient sinking within

a few hours; but most frequently, as I have told you, it runs on to assume the septic type. Sometimes asthenic symptoms supervene very suddenly. A man may be complaining but slightly, not feeling it necessary to confine himself to bed or even to the house, when all at once he sinks, and dies in a very short time. The asthenia of fevers, as you will remember, is often closely connected with a tendency to softening of the heart; and you are all aware how in the ordinary chronic non-febrile softening of that organ, death sometimes occurs very suddenly; how a person is suddenly arrested in the midst of his avocations by death, the result of a disease which yet has been of very chronic standing; and thus you may understand that if the poison of plague act upon the heart in the same way as that of typhus, death may occur, as it does in somewhat similar circumstances in scurvy, with unexpected suddenness.

The second of these phlegmonous fevers is the very remarkable disease which goes under the name of PUERPERAL FEVER, occurring, of course, in patients only in one particular condition. By it we do not mean every fever which may seize on a woman recently delivered. She may for example, as we have seen, take scarlatina, of which she is almost sure to die; she may take typhus or small-pox, which will prove almost as certainly fatal: but these are not puerperal fever, though as occurring in such circumstances, they may assume some of its peculiar features. Still less do I speak of "milk fever," which to a certain extent is almost a natural occurrence; in true puer-

peral fever the milk is for the most part suppressed : nor is puerperal *inflammation* necessarily puerperal fever, though often existing as one of its complications : a recently delivered woman may die of peritonitis, or of inflammation of the uterus, or from phlebitis ; but puerperal fever is as true and distinctly characterized as any of those which we have been considering, and like them may put on various types and assume various complications. In the most serious cases it is like plague in respect of the rapidity with which it goes on to a fatal issue. You will find for example recorded in the article on this subject in Dr. Copland's dictionary, the case of a woman who was suddenly attacked when sitting by the fire a fortnight after her confinement, and who in a single hour had already passed into a hopeless state, dying before the end of that day with the most marked symptoms of adynamic nervous fever, tympanitis, hiccup, palsy of the sphincters, and failure of the power of the heart. At the other extreme stands Weid, the puerperal ephemera or intermittent, which is sometimes of the nature merely of a "simple fever," arising from cold or from nervous causes, but may also be a slight form of the true specific malady.

It does not fall within my province to treat minutely of this disease ; but our sketch of fevers would want completeness did I not very briefly point out its leading characters ; and in truth it is a fever intensely interesting in its own varied and remarkable nature, and in regard to the circumstances under which it happens—the fatal cases leaving on the

mind an impression of enduring sadness, as they quenched in darkness the long expected joy.

The types of this fever, as well as of others, may be very various—the toxic-congestive, the inflammatory, and indeed all the rest may be noticed—each demanding its special and appropriate treatment; but throughout the varying disease we can trace, as threads woven into it, two special characters, which ought ever to be kept in mind. The first is the excited state of the nervous system, and the second the exhaustion of the vital powers—*irritability and asthenia*—the characters in fact of the nervous type of fever. The causes of this are manifest enough: the patient is always more or less weak; exhausted by the fatigue of the labour, exhausted it may be by hæmorrhage; and in almost every case in a state of nervous anxiety as to the result. Sometimes the debility is the most prominent symptom, sometimes the nervous excitement. One of my patients, after a very easy and every way prosperous labour, complained only of weakness; there was no hæmorrhage, no pain, no anxiety of mind, no discoverable local affection, but from the time of her delivery her pulse continued very rapid and very feeble, and in spite of the most liberal use of food and stimulants she died in a week, without any additional symptoms, till one of the wrists began to swell on the day before her death; her mind was calm and clear to the very last. Another lady, having been told by an injudicious friend of some fatal puerperal case, made up her mind that she too must die; at the beginning of her labour she

announced that she should not survive the ninth day. Her whole mind possessed with this idea, she began shortly after delivery to talk and rave about it, while there was so little uterine uneasiness or local symptom of any kind, that but for her rapid pulse it might have been thought to be a case of puerperal mania. No local lesion supervened; she became more and more excited, sleepless, exhausted, and on the ninth day she did die. These are typical discrete instances of the two great elements of this fever, apart from complication. Both occurred during the epidemic prevalence of puerperal fever, and both in very healthy women. Whatever complication may be superadded to the pure fever, whatever local inflammation may occur, always remember that the cardinal points are to support the strength and to soothe the nervous system.

This specific fever, as I have indicated, becomes in many cases epidemic. Sometimes most fatal epidemics occur; and it is also most contagious—more contagious probably than any other fever, although those susceptible of it are for the most part only puerperal women: for the most part, I say, for I have been informed by a medical friend that one of his patients having died of typical puerperal fever, with the characteristic phlegmonoid swellings, her husband, who had anxiously attended her all the time, was taken ill with similar symptoms, and died under a fever precisely the same in all its characters. But to women in childbed it is excessively contagious; scarlet fever is not so easily carried. And

I believe the profession now well knows what great precautions are necessary to be adopted by those who have to deal with this fell disease. It is, I say, well known that an accoucheur may, even for days, still carry upon his clothes the impalpable but virulent poison, thus diffusing death among his patients.

As in most fevers, the outset is usually by a shivering fit, and with the reaction any of the very various phenomena may appear. No fever is more various; the toxic, the inflammatory, the septic types, are all represented in different specimens of the disease; but asthenic and nervous phenomena always lie as a substratum to the whole.

But not unnecessarily to extend the description of a malady which you will have amply discussed in another course than that of Practice of Medicine, I shall only further remark regarding its symptoms, that this above all other fevers is apt to assume various local affections, which give it a complicated character, and the frequent presence of which is one cause why there has been so much confusion with respect to the essential nature of puerperal fever, so much doubt in many minds as to whether it ought to be considered as a fever at all, and not merely as the constitutional effect of some one or other of these local diseases.

I have classed it as a "phlegmonous fever;" for we are very apt to have various phlegmonoid swellings, followed by suppuration, over the body—on the arms, in the cellular tissue of the legs, and so on. Sometimes suppurative inflammation of the joints

takes place, putting us in mind of what I mentioned as apt to occur as a sequela of Typhus. You remember that after typhus we sometimes have a rigor, followed by pains in the joints, with suppurative inflammation of the synovial membrane, and jaundice. Now, jaundice is one of the symptoms which emerge in these cases of the puerperal fever. I have seen the most intense nervous excitement with sinking follow immediately, and without visible cause, upon an easy labour; jaundice supervene, and the patient die on the fourth day exhausted by sleepless delirium.

As in other fevers, various visceral complications may occur; the lungs or the brain, for instance, may suffer; but those characteristic of the malady are affections of the abdominal viscera; above all, of the uterus and its appendages. Metritis, peritonitis, ovaritis, may indeed occur in a puerperal woman as mere local diseases, and may prove fatal, as any inflammation may; pyæmia may follow on uterine phlebitis, or on the mere absorption of decomposing lochial secretion; and it may be difficult in individual cases to tell whether the essential fever exist or not; but its occasional epidemic prevalence, the way in which it may be carried about on garments, its fatality now and then in the pure toxic form, without appreciable local disease, all confirm the view I have been taking, that the various local affections are not of its essence, but, however frequent, merely accidents of the fever.

But indeed in a practical point of view, the ques-

tion is not of great importance; it does not lead to a diagnosis between contagious and non-contagious forms of puerperal disease; for such affections, arising in any way, are apt to evolve themselves into the true contagious fever, a fact which leads us to useful practical precautions, as well as to interesting views as to the origination of contagious diseases. Puerperal fever has a very close relation to what we termed "effluvia." It is well known that those engaged in making *post mortem* examinations ought never to attend women at their confinement. Although you may not have been examining the bodies of persons who have died of puerperal disease, yet if your hands have been immersed in dead matter—in the fluids of dead bodies, whatever be the disease of which they may have died—I believe it is certain that you may give rise to puerperal fever in a woman whom you deliver; and puerperal fever so excited, produced by such a non-specific cause, may in her body become by and by specific—may become the contagious fever, capable of being communicated, directly or indirectly, to another woman in the like circumstances. Nor do I found this opinion merely upon the phenomena of puerperal disease; analogy convinces me of its correctness. A little child in a family I attended got an ipecacuanha emetic. Instead of producing vomiting, it brought on diarrhoea, which gradually passed into severe dysentery, a disease not at that time epidemic here. Less than fitting care was taken to remove the evacuations and keep the rooms sweet and clean; *four* other members of the family

were attacked by dysentery in a very severe form, there being no other cause to which this unusual occurrence could be attributed than contagion, thus arising from a patient in whom the disease was not only purely sporadic, but distinctly induced by mere local irritation.

The radical principles of the *treatment* of puerperal fever are involved in what I have already said to you. Any local depletion must be kept in due moderation by a remembrance of the essential nature of the fever: and in fact marked success by depletory measures of any kind will be generally a proof that we have been dealing not with complicated puerperal fever, but with a mere puerperal inflammation. In treating of the various types of fevers, I said almost all that I can say to guide you here; the only remedy which has any pretension to be called a specific is spirit of turpentine. We recognize its efficacy in some other blood diseases: in puerpera and in syphilitic iritis it is of acknowledged utility. We know its power over local congestion and over the hæmorrhagic tendency—and thus we may be the more inclined to give credence to the testimony of authors as to its specific influence over puerperal fever: the evidence in its favour being far too good to be despised. It is to be exhibited in small frequent doses, say twenty minims every three hours; while it may also often be used with much advantage in the form of enema, greatly relieving that flatulent distension of the bowels which is so frequent a symptom in these cases. The hot turpentine stupe, too, is perhaps the best of all

applications to the abdomen ; deriving from the congested pelvic viscera, and stimulating the uterus to more perfect involution. I need not add that in the treatment of this disease nourishment and stimulants are all important.

Local treatment is not commonly required for the phlegmonous swellings ; for too often the patient dies before the surgeon could interfere with advantage. In this, puerperal fever differs from erysipelas, with which we shall to-morrow begin our last lecture on fever.

LECTURE X.

ERYSIPELAS.—THE ADYNAMIC MUCOUS FEVERS ;
DIPHThERIA ; INFLUENZA.

YESTERDAY we borrowed somewhat from obstetrical science ; to-day we trench a little on the field of surgery ; for the circles of these departments overlap one another on this point of our own domain.

ERYSIPELAS is the third and last of the Phlegmonous Fevers. I need not tell you that it occurs as a local disease, that it is an every-day surgical affection, that erysipelatous inflammation comes on in the seat of injuries, around wounds, and so forth. At other times, as surgeons know, erysipelatous inflammation seizes upon the fibrous tissues, the fasciæ, the sheaths of the tendons, and the periosteum ; and these cases can hardly be called fevers. But still, in its typical idiopathic form, erysipelas is a true fever, and like the cognate diseases we have been considering, may undoubtedly be both epidemic and contagious. Of this the local manifestations show themselves typically on the face and head : it begins very frequently in the middle of the forehead and spreads symmetrically over the head : at other times it begins at one side, and gradually invades the other.

Now the first thing that strikes us is the very close connection between erysipelas and puerperal fever; in a sense they may be said to be the same disease. Nurses who have attended cases of puerperal fever have not unfrequently taken erysipelas, and puerperal fever has been traced to the contagion of that disease; but in particular there is observed this remarkable connection between them, that the infants of women who die of the fever are very frequently cut off by erysipelas: this I have myself observed in more than one melancholy case. Sometimes the inflammation appears first about the umbilicus, sometimes on other parts of the body: but usually infantine erysipelas is of a more than ordinarily wandering character, creeping imperceptibly from one part of the surface to another, cheating our hopes by leaving its present seat only to assume another; while all the time the child becomes more and more exhausted, sinking at last under the specific malady. Now and then in these cases, as well as in those I formerly noticed to you when speaking of the sequelæ of fever, the affection is one purely of the skin, the redness of which is pale and yellowish, and the swelling so slightly marked that you detect it only at the edge of the inflammation, where it sinks abruptly on the yet healthy surface.

Erysipelas, like all the diseases we have been studying, may present various degrees of severity, and very various types. It generally tends to be asthenic, but it is a great mistake to run away, as some do, with the idea that because it is erysi-

pelas it must of necessity be so. Plague is for the most part asthenic, so is typhus among us now, but these diseases may assume other characters as well, and thus too it is with erysipelas. The eruption peculiar to it I need not describe to you; you all know perfectly its appearance: it comes out about the third day of the febrile symptoms, as a diffused inflammation of the skin proper, an inflammation producing considerable cutaneous swelling, and tending to vesication; in the pure disease the subcutaneous tissues are intact; the spreading redness affects the skin alone; it alone is swollen, and therefore not much elevated. In very many cases however, it takes hold of the subcutaneous cellular tissue, which becomes infiltrated, first with serum, and afterwards with pus, so that in bad cases you have the serious complication of abscesses, often very extensive. But it is not confined in its action to the integument; erysipelas may attack the fauces, the general mucous membrane of the mouth, the upper part of the glottis, and as we saw when considering the sequelæ of fever, may, when in this last seat, kill by suffocation. It may be of the typhoid type, with all the symptoms characterizing any typhoid fever. Sometimes it is accompanied by visceral complication, especially disease of the brain: thus I have seen actual inflammation of the arachnoid membrane and of the brain occur in the sequel of erysipelas, the sac of the arachnoid being distended with turbid serum mixed with lymph.

The *treatment* must, as in other fevers, vary; but as

it is mostly asthenic in character we must especially beware of too free depletion. Many cases must be stimulated from the very beginning, the strength being kept up by the exhibition of alcohol, in the form of brandy, and as much beef tea as the patient can digest or assimilate. The late Dr. Todd particularly pressed the necessity of such stimulating and supporting measures, going however I think rather too far in these recommendations, and looking at the disease as too exclusively asthenic. I think you will find that there are specimens of erysipelas in which we do *not* require to stimulate, cases to which a cooling and sedative regimen moderately used are far more suitable. Be guided in your treatment, not by the name of the disease, but by the individual features of the case before you, and treat this on the same broad principles as you would any other fever, remembering always that the degree of swelling, the amount of pain, constitute of themselves no test of the state of the vital powers, regarding which the pulse, the muscular strength, and the general feelings of the patient will give us better information. In infantile erysipelas, especially stimulants are often called for; and I have seen young children saved by the steady administration of brandy in quantities which might have seemed beyond what their tender age could bear.

There is but one medicine which has been very much recommended as a specific in the treatment of this disease,—the tincture of the muriate of iron. I think I have seen benefit from it; but I am sure

that it is not so useful as stimulants and food, though there can be no harm whatever in prescribing it. Wherever you have a case of erysipelas bordering on the asthenic character, you are quite safe in giving twenty minims every couple of hours; but you ought not therefore to pause in the employment of alcoholic stimulants, or of food in the shape of beef tea.

For the rest, surgical aid is often needed in erysipelas; abscesses have to be opened, nay, as we formerly saw, laryngotomy may have to be performed, to meet the *results* of the disease. But in the management of the primary affection, I have no confidence in any local measure. Tepid lotions, cotton dusted with flour, inunction with lard, may be used as they severally seem best to soothe the heat and pain; but incisions, punctures, cauterization, had best, I think, be omitted altogether.

There remain for our consideration two fevers only, which for convenience' sake I have classed together, taking advantage of the characters which they have in common, and calling them, as you are already aware, ADYNAMIC MUCOUS FEVERS. By many, perhaps, Diphtheria and Influenza are hardly reckoned among the fevers, for their several local affections are so distinctive and so constant as to be apt to absorb our attention, and force the constitutional element out of sight. Out of sight however, for safety to our patients, it never ought to be; for the key to the treatment, even of the local ailment, is to remember the prostration of the nervous system and of the general powers of life, which forms so important a part

of the disease: in the worst cases, indeed, the sudden depression of the vital powers reminds us somewhat of the effects of the bite of a venomous serpent. However severe therefore the local symptoms may be, they are always asthenic; however great the local irritation and pain, they are best relieved by a tonic and stimulating plan of treatment. Both maladies are typically, proverbially epidemic: of their contagiousness more question has been made; but I think that even as to influenza, with regard to which the point was most in doubt, the affirmative answer is certainly correct.

These diseases begin with less of the usual character of a fever than those which we have been considering. The initial shivering is less marked, and in fact the local symptoms are in general what chiefly attracts the notice of the patient himself. He calls his complaint a sore throat or a cough; and you too are very apt to mistake it altogether for local disease—tonsillitis or bronchitis, as the case may be—until, observing the disproportionate depression of the vital powers, you are led to detect the real nature of the malady. In diphtheria the mucous membrane of the mouth and fauces—in influenza that of the bronchi—are the parts seized upon by the poison: putting us at once in mind of scarlet fever and of measles—diseases however which often assume a sthenic inflammatory type, wholly foreign to the nature of those with which we are at present concerned.

DIPHTHERIA now and then occurs with its characteristic symptoms in a sporadic form; but for the most

part is epidemic, appearing suddenly and spreading rapidly, as epidemics are wont to do. Sometimes its peculiar symptoms are implanted upon those of other maladies; thus a case of measles, a case of scarlatina, will sometimes become diphtheric; just as measles and scarlet fever may themselves coexist. Diphtheria is spoken of as a new disease, but in fact it is very old—new diseases indeed not being very common in the world; and French writers had described it under the title of Diphtheritis, figuring likewise, as Cruveilhier has done, its anatomical results.

What then are its characteristics? There are two—the special and early prostration of the general vital powers; and locally a peculiar sore throat, with inflammation of the mouth; the peculiarity of which affection consists in the tendency to exudation of lymph upon the affected mucous membrane. Such an effusion may be the attendant of highly sthenic action, as in inflammatory croup; or it may occur as an indication of the asthenic state. The vital prostration and the affection of the throat are not always proportionate to one another, for this simple reason that they are not dependent the one upon the other. In ordinary tonsillitis the fever is always proportioned to the local malady, because the local malady is the cause of the fever: in diphtheria the prostration is one effect of the poison, and the local inflammation is another. Of course if the local ailment be severe we have always much prostration, but we may have great vital exhaustion with comparatively slight affection of the throat; excessive depression, nay even

fatal sinking, may take place with hardly any local lesion. You will observe that there is a close relationship between this disease and erysipelas; in fact the erysipelas of the throat which Dr. Todd has described in his clinical lectures is identical with one form of diphtheria: there is the same dusky redness of the fauces, the same difficulty of swallowing, chiefly from mere paralysis of the muscles of deglutition. Thus we find the "phlegmonous" overlap the "mucous" fevers.

Diphtheria attacks chiefly young people; but no age is free from its assaults. Like all the other fevers it may occur in a mild or in a severe form, and between the two there are of course endless gradations of intensity. Sometimes, as in the cases which I have just been likening to erysipelas, there is only sore throat, with swelling of the fauces and tonsils, but no effusion of lymph upon these parts. In these cases you may often trace the disease by a filmy whitish exudation covering the gums close to the teeth: this is an indication that the disease is of diphtheric nature, though there be no albuminous effusion on the throat—an indication that it ought to be dealt with as an asthenic malady. In the severe form there can be no difficulty in making the diagnosis. There is great depression; the throat is much swollen and red: in adults it is generally of a dusky red, with a pulpy-looking swelling of the whole fauces, particularly the arches of the palate; the tonsils partaking of the general turgescence. The special characteristic of the disease is the albu-

minous effusion: sometimes there are spots only of it on the tonsils and fauces, but in other cases a continuous layer of lymph more or less tough, adhesive, and extensive, forms a dense grey coating on the mucous membrane; and this effusion is not always confined to the mouth and throat: it sometimes passes down to the larynx, and there it produces the most dangerous symptoms—the tendency to death by suffocation. With the disease as I have described it there is much difficulty of swallowing; the voice is altered, the patient speaks through his nose, and is in great distress, oftentimes in restless agony. Death sometimes takes place suddenly, as we have seen occur in plague; patients having been walking about quite unconscious of danger, till suddenly seized with the intense and peculiar depression of the disease, of which very often the issue may be fatal: hence we learn this lesson, that to obviate as far as possible this risk of sudden failure of the circulation and vital power, every one under diphtheria should be confined to bed. When death takes place it arises from one of three causes—from general depression of the nervous system, as a person dies who has been bitten by a rattlesnake; from the local lesion of the throat, particularly where there is inflammation down towards the larynx—death in such a case being often produced by suffocation; or from some complication, the most familiar being inflammation of the lungs. In some cases we find the bronchial tubes occupied by an effusion of lymph, branching root-like into their ramifications.

Diphtheria is by some considered to be a variety of scarlatina. I cannot agree with this opinion, but rather with that against their identity, deduced also by Dr. West, as the result of his clear summary of the difference between these diseases. But without going over these points, one of the strongest of which is that the diseases are found to follow one another in the same person, I think we may arrive at the like result by taking a broad view of the whole aspect and character of the maladies. We are not to contemplate exclusively any one symptom, such as the affection of the fauces; else we might place influenza too among the exanthemata, as cognate to measles: but looking at the whole features and physiognomy of the diseases as I have attempted to trace them to you in general outline, I think we must be satisfied that diphtheria and influenza are very far from being akin to the typical fevers which occupied us at first. This does not hinder that diphtheria should be combined with scarlatina, as we saw that even enteric fever may sometimes be.

Diphtheria like other fevers has its sequelæ, all marked by the characteristic prostration, sometimes in an excessive degree. Utter weakness and exhaustion, passing on to hopeless sinking of all the powers of life, is sometimes observed to follow the disease; debility and paralysis of the muscles, in particular those of the lower limbs, or of the muscles of articulation, or loss of the adaptive power of the eyes, are some of the chief.

With respect to the treatment, it is well ascer-

tained and simple, though in too many cases unequal to carry the patient through the depression of the disease. The key to the whole is to support the system by an exhibition of wine, brandy, or ammonia, as stimulants; and to give as food plenty of good strong beef tea, or milk if the patient prefer it. He will scarcely believe sometimes that you are treating him aright. Not long ago I attended a young lady labouring under a moderate attack of the disease, the skinny effusion existing on the gums alone; her throat was much inflamed and excessively painful, and she was calling out vehemently for leeches; but I ordered her a glass of port wine every three hours, and as much strong beef tea as she could drink; and next morning she was convalescent. Quinine, or the extract of cinchona, is one of our most valuable medicines in these as in so many other asthenic cases, and may be given with camphor or small opiates if the nervous irritability be great. We have specifics also for this disease—two in number, and I believe I have seen each of them efficacious—chlorate of potash and muriate of iron. They are not inconsistent with one another: you may give to an adult a scruple of chlorate of potash in solution every four hours, and the tincture of iron in intervening doses; but alcoholic stimulants and food are our sheet anchors, though carbonate of ammonia and cinchona may also render us good service.

One obstacle with which we have to contend, is the difficulty of swallowing which the patient experiences; but by steady perseverance in making the

effort, he usually succeeds in getting the fluids slowly down. To local treatment some attach much importance: Dr. West, than whom there is no more judicious writer, lays great stress on the advantages to be derived from the application to the fauces of a strong solution of nitrate of silver, or of the strong muriatic acid mixed with four or six times its weight of honey. I think for my own part that I have seen benefit from using tannin gargles; but in the few cases in which I have had an opportunity of trying the more powerful applications which I have named, they have seemed to me but to add to the patient's uneasiness. It will always be right to give them a trial, but not to persevere in using them if they afford no relief. In the sequel of the malady, all tonic measures must of course be diligently and perseveringly employed.

The vulgar name INFLUENZA-FEVER is more correct than the "epidemic catarrh" of scientific authors. As with diphtheria so with influenza; it is the *fever* which must be the chief object of our treatment, a fever always adynamic; and the catarrhal element is vainly treated if treated as a merely local malady. There is no disease so typically epidemic as influenza; there is no epidemic fever which may spread with such overwhelming rapidity over a wide extent of country. Like other fevers, it begins with rigors more or less distinct; but the reaction is soon lost in symptoms of marked exhaustion, mingling with the cough, dyspnoea, and distress arising from the pulmonary affection. Under these the old, the feeble, and the very young are apt to die; so that an

epidemic of influenza, although not of high average fatality, yet from its extensive prevalence carries off very many of the population. It assumes all degrees of severity, the robust youth scarcely thinking he has more than a cold; while in the weak old man the disease is characterized by great prostration, and by breathlessness sometimes amounting to absolute suffocation; the face being livid, as that of one in the last stage of bronchitis: and especially is influenza dangerous to those who labour under any chronic disease of the heart or lungs; in such cases the attack is usually fatal.

The medical management, like that in diphtheria, must be supporting and invigorating; no bleeding, no antimony, and no blisters. Long ago Dr. Graves raised his voice against these modes of treatment. You ought however to counter-irritate freely: mustard plasters, turpentine stupes, stimulating embrocations to the surface of the chest—it may be dry cupping over that portion of it where the lungs appear to be particularly congested, are all of the greatest use. We must of course stimulate in proportion to the depression. Besides alcohol, the special medicines which are useful in influenza are ammonia, camphor, and infusion of senega, all of very great value in removing the asthenic congestion which forms the principal danger. In particular ought the patient's room to be kept warm: during the late cold weather I saw some very bad cases of influenza, especially those of two old ladies, and of two young infants. When I was called, I found each lying in a room

comparatively cold, wheezing and coughing; the difficulty of breathing was intense; they were livid and almost suffocated. On auscultating the back part of the chest I could hear hardly any respiratory murmur; only bronchial sibilus and obscure mucous crepitation: the air seemed scarce to enter the cells of the lung. I had them removed to rooms thoroughly heated, and administered beef tea freely, brandy, and ammonia; hot turpentine poultices were applied to the chest: their breathing was relieved, and in due time they all convalesced. I am sure that if any attempt had been made to remove this pulmonary congestion by leeches or purgatives, the patients would have sunk.

These are the two diseases which fall under our head of Adynamic mucous fevers. Perhaps some might be inclined to add a third—cholera. Like these it is epidemic, and, as I think, contagious; it exhibits the same rapid prostration; it too has its characteristic affection of a mucous membrane; and it presents the same differences in degree as the other maladies I have mentioned; we meet with mild cases which hardly constitute a disease, and we have others in which death occurs within an hour or two after the first seizure. Some reckon cholera a fever; and Dr. Copland classes it with yellow fever and plague as one of the three pestilences. But its symptoms are so peculiar in many respects, that it seems to me better for our present purpose to omit it from the list of fevers, which we have thus now exhausted. And in the consideration of the diseases

which I have latterly been describing, you must have noticed how far we have got from the typical fevers with which we started. In erysipelas, in diphtheria, in influenza, we have no regular periodicity, no fixed course; the local affection comes out prominently into view, and the fever, true and essential as it is, loses much of its individuality in the combination: and yet having traced the series all along, you have seen how closely the links of the chain are united.

I need not say that during these lectures I have made no attempt to give you a minute account of fever in general, or a full description of any one of its kinds. This would have been impossible in the time at our disposal, and undesirable even could it have been accomplished. What I have tried rather to do has been to trace general outlines, which you may fill up for yourselves; and I can only hope that I have traced them correctly. I have not attempted to instruct you, so much as to give you a clue whereby you may be guided in instructing yourselves. To give a minute account of all that is known respecting any fever, would have been to you a most tedious and confusing process, for the literature of the subject is in fact a flood of books, a library growing year by year. But as the millwheel of time goes round, epidemic after epidemic rises to the surface, and that which prevailed years ago reappears to-day. Observers cluster round, all busily spinning their webs whether of sense, or of nonsense; and there they weave till epidemics and observers are all submerged beneath the ever-flowing years, often to be both alike

forgotten till, in the course of time, a similar epidemic comes up again to the surface, to be seized upon by a new generation of doctors, who weave anew, tacking their webs to the dripping remnants of their predecessors' work. To read monographs, gentlemen, on particular fevers, however able, however important they be, is not, I think, the way in which you can best lay the foundation of your knowledge of the disease. You want in the first place to get a good notion of fevers as a whole, a broad idea of their general relations to one another. A few days ago, a senior friend in the profession asked me upon what I was lecturing, and on my reply, remarked that students did not care about fever—they did not take an interest in it. I thought, So much the worse for them and for their future patients: whatever may be the case now, they will in the course of their practice certainly have to care for fever. But, perhaps, one reason why students do not care so much about fever as about other diseases is because of the complicated way in which it is sometimes treated, and of the difficulties which I have been endeavouring, with what success I know not, to show you are more apparent than real. I make no pretensions to originality; I have not endeavoured to bring novelties before you; I have aimed at simplicity and clearness of arrangement alone. Trust me, the way in which a *student* may most profitably study this subject is not by wading through volumes and papers written by physicians who have minutely studied particular fevers. Thereby you get entangled and implicated in various details which confuse the

mind to such a degree, that in the end you probably lose all power of distinguishing one fever from another.

But if the natural history of the fevers is a complex and puzzling subject, the ascertained principles of treatment are fortunately few and simple; and remember that these are proved, not by statistical results of overhead practice, but by careful bedside study of individual cases. The clinical study and treatment of fever is eminently fitted to train you to open-minded observation, and unbiassed eclectic practice: nothing brings a routinist more utterly to confusion. Fever dodges and doubles on the physician, plays fast and loose with his prognosis and his treatment, and Proteus-like, it eludes the grasp of any single means however powerful; so that if any profess to have some one remedy to which, in dealing with fever, he is in the habit of chiefly trusting, I can only fervently hope that he may never find it his duty to treat me. And how wide the field for study and for practice which this disease throws open! since, in its own nature so various, it brings all manner of ailments in its train. Of such a field as this, it is but a bird's-eye view that can be taken in a general course of Practice of Medicine; but during the rapid sketch I have given of the very various subjects which have passed under our notice, I have been much encouraged in knowing by the attention you have paid me, that *you* at least take an interest in fever.

Deeply important interests, trembling anxieties,

will cluster in future years around your fever cases. The head of a household is seized with typhus—the scarlatinous eruption appears upon an only child—the mother of a family has the premonitory symptoms of puerperal fever: you will know when you come to be engaged in private practice how the hopes and fears of all gather round *your* opinion, *your* prognosis—how, while it is your duty to be calm, and decided in action, your best discrimination, your greatest care, appear to yourselves all unequal to the emergency in which lives so valued seem to hang upon your skill; for I trust yours will never be that callousness of spirit which would cheat you of the happiness, if it shielded you from the anxieties of our noble calling. To the student remedies seem all but infallible, accustomed as he is to connect each disease with an “appropriate” treatment; the young practitioner, often sorely disappointed and half heart-broken by the non-recovery of his patients, begins to lose faith in everything he has been taught to do, and verges towards scepticism in his art; but by and by calmer observation proves to him that it is *not* an unavailing art. Some one I think has happily remarked, that medicine may be well compared to the analogously uncertain arts of agriculture and navigation. The most skilful farmer’s crops may perish in a long continued drought or in a sunless summer; the best sailor must often succumb to the fury of the elements: but men do not therefore lose faith in farming or in seamanship. It is true that our patients now and then die most unexpectedly: but it is also true that they often survive when death

seemed certainly approaching. I remember the case of a little girl who, as I had reason to believe, was taking scarlatina: when I visited her at eight in the evening she seemed but slightly ill, and sitting up in bed called after me in a clear loud voice that she would be quite well to-morrow: I was summoned hastily at six in the morning, and found her dead. But I also remember a lad, whom I attended through a four weeks' fever, in which he first had great asthenia, with a pulse at 150, and a heart's action upheld by wine and brandy in almost unlimited quantity; then in succession most severe diarrhoea; intense pulmonary congestion; and convulsions, followed by partial palsy, from affection of the brain; and yet he is at this moment in perfect health and vigour.

In the management of fever cases there is ample room for the exercise of all the powers of observation you can cultivate, of all the skill you can acquire: so far from fever being a disease, as is sometimes ignorantly said, where the physician can do nothing, there is none in which prompt and well-timed interference is more frequently of vital benefit—just as there is none in which a prudent Fabian policy may not be sometimes best; when of the watchful medical attendant it might be said that, holding back unnecessary interference, *cunctando restituit rem*. The unexpected recoveries from what seemed the gates of death,—the equally unlooked for sinking of patients who appeared to be doing well,—the way in which some cases yield to our remedies, and in which others

defy our best efforts, gives the thoughtful physician only to feel all the more, that while a purely "expectant" practice is little less than dishonourable folly, *all* his expectations must centre on the will of Him to whom alone belong the issues from death.





